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MONTHLY REPORT

OF

THE DEPARTMENT OF AGRICULTURE,

FOR

MAY AND JUNE 1868.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1868.

MONTHLY REPORT.

WASHINGTON, D. C., *June* 30, 1868.

SIR: I herewith report for publication matter collated for May and June upon the following topics: Condition of the crops; protection against wool-buyers; special statistics of farm resources and products; wine-growing in California; British agricultural statistics of 1867; seed wheat for the north-west; the cotton trade in 1868; American ploughs in Europe; encouragement of silk culture; and meteorology for April and May, together with a variety of extracts from letters of correspondents.

J. R. DODGE,
Statistician.

Hon. HORACE CAPRON,
Commissioner of Agriculture.

CONDITION OF THE CROPS.

Wheat.—An increase of acreage is observed, in a greater or less degree, in nearly every State. The eastern States show no increase of fall sowing, except 4 per cent. in Vermont, but the enlarged area of spring crops, which are the main home reliance for bread supplies, is very marked in Maine and Vermont; the former showing an advance of 26 per cent., the latter of 16 per cent. A very slight movement in this direction is shown by New Hampshire and Massachusetts. New York indicates 5 per cent. increase in fall acreage, with no change in spring wheat. New Jersey shows an increase of 3 per cent. of winter wheat. In Pennsylvania the acreage is very slightly enlarged—3 per cent. for winter wheat. In Delaware a reduction of 7 per cent. appears; while an increase of 9 per cent. is shown in Maryland; 11 in Virginia; 17 in North Carolina; 21 in South Carolina; 11 in Georgia; 10 in Alabama; 53 in Mississippi; 31 in Arkansas; 40 in Tennessee; 30 in West Virginia. In Texas a decrease is shown of 6 per cent., and in Kentucky of 1 per cent. Spring wheat is not grown in the south.

The increased acreage in the west, where the great bulk of the wheat crop of the country is grown, is of peculiar significance. Of the States in which winter wheat is most largely cultivated, Ohio presents an increase of 5 per cent. of that variety; Indiana 10 per cent., and Michigan 17 per cent. In portions of these States an unusual effort has been made to enlarge the area by spring sowing, showing respectively 11, 14, and 6 per cent. increase. In the States which rely mainly upon spring sown crops, Illinois indicates an increase in that variety of 12 per cent.; Wisconsin 4 per cent.; Minnesota 23 per cent.; Iowa 12 per cent.; an increase having been made also in winter wheat in the same States, with the exception of Wisconsin and Iowa, though in Minnesota the total product of fall sown wheat is too trifling to be much affected by it. The increase of winter wheat in Illinois is placed at 10 per cent.; in Missouri 50 per cent.; in Kansas 25 per cent.

An analysis of these averages will show a general average of about 11 per cent. increase in the fall sowing, and 28 per cent in the breadth of spring wheat; altogether an increase of 18 to 20 per cent. in the aggregate number of acres in wheat.

The reports of condition, for June, are generally very favorable. A promise of the best crop ever known is held out by local correspondents in many places, particularly west of the Mississippi; but such drawbacks as these are occasionally presented, proving the constant deterioration of wheat lands: "Winter grain on new land is looking very well, but there is a large proportion of wheat sown on old, worn-out land, poorly managed, and a very light crop will be the result." Many washing rains have occurred, and some complaint of falling is made. The extent of this damage, which has been more severe during the latter part of the month, is not generally determined.

Many of the most serious complaints of winter killing in Kentucky and Tennessee have been greatly modified by the subsequent growth and tillering from roots presumed to be dead. One Kentucky correspondent says: "I am compelled now to say that I never in all my life saw a greater outcome in wheat;" and this remark is applied to all the counties west of the Tennessee river.

Damage from rust has been severe in Abbeville district, South Carolina, and in Barton county, Georgia, the loss from this cause will make the crop lighter than for several years; and more or less complaint is made throughout Virginia and Maryland of appearance of rust upon the blades, which has affected the stalk but slightly in most cases, and done little damage to the crop. Similar reports have come from parts of Ohio and Kentucky. The weather, which has been so wet during the period of growth, has generally been quite propitious as the period for ripening approached.

It is gratifying to observe that some farmers are practicing upon the suggestion made in the February report relative to horse-hoeing wheat, with wide drill culture and thin seeding. Our correspondent, in Rock county, Wisconsin, is experimenting with ten acres of spring wheat, put in with a twelve-toothed drill at intervals of 18 inches, at the rate of three pecks of seed to the acre, to be carefully cultivated by means of the machine with which it was planted, used as a system of hoes, two running in each space between the drills, the one used for drilling being fastened up.

A fine crop of white Mediterranean and Tappahannock wheat, distributed by the department, is reported in Washington county, Mississippi, sown November 11, and ripe June 1, promising 35 bushels per acre.

Rye.—About the usual acreage of rye is reported. Maine is the only eastern State that fails to come fully up to the average; the Middle States have scarcely the usual breadth; and in the west, Ohio, Illinois, Iowa, and Kansas, are slightly deficient, Iowa falling short six per cent. The other western States are a little in excess of the usual sowing. The south shows about an average breadth in this crop.

Barley.—Kentucky, Missouri, and Minnesota, have given increased attention to barley, but most of the other States are either slightly below the average or barely up to it. The fall sowing, especially, was deficient in most of the western States, but the deficiency was generally made up by extra exertions in preparing for a spring crop.

Oats.—An increased area in oats, averaging seven per cent. for the entire country, is reported. The States showing the largest proportionate increase are in order: Kansas, Missouri, Arkansas, North Carolina, Nebraska, West Virginia, Minnesota, Vermont, Kentucky, Iowa, South Carolina, Illinois, Michigan, Tennessee, Virginia, Georgia, Indiana, Alabama, Wisconsin, New York, Florida, Mississippi, Ohio, Pennsylvania, Louisiana, and Connecticut. Those showing less than last year are in the order of their deficiency: Delaware, (27 per cent.,) Massachusetts, Rhode Island, Maryland, New Jersey, New

Hampshire, and Maine. Reports of condition are generally favorable; Illinois constituting the only exception of a reduced average in the west; in the south, Texas, Florida, South Carolina, and Maryland; in the east, Connecticut, Rhode Island, Massachusetts and Maine.

Clover.—It is worthy of note that every State in the Union reports an increased attention to the clover crop, with the single reduction of two per cent. in New Hampshire, and the prospect for a good crop is almost universal, Kentucky only being marked a trifle below the average.

Pastures.—Delaware and Wisconsin are the only States failing to give increased averages.

Fruits.—The appearance of apple blossoms was unusually late on the Atlantic coast, opening very fully at last, they were injured in many places by storms and unpropitious weather. In the central part of the west, bloom of orchards was not generally abundant; it was small on the Atlantic coast between New York and Georgia, with the single exception of apples; west of the Mississippi it was large, and in some localities excessive.

In Kent county, Maryland, a severe frost occurred about the 8th of May, which killed the peach crop and injured materially the prospect for apples and pears. A few orchards appear to be partially exempt from the injury, otherwise the failure is very nearly total. Similar reports, generally indicative of injury less severe, come from Maryland. The condition of peaches in New Jersey shows a reduction of 24 per cent. Michigan comes fully up to the average in condition of peaches, but the amount of bloom was less than usual. In Illinois the prospect when the trees were in bloom was better than the recent indications. On the whole, a comparatively short peach crop may be expected this year, though some localities may have a full supply.

In Lycoming county, Pennsylvania, peach trees have been winter-killed, as well as grape vines that were unprotected; quince trees are dying; and much complaint is made of the destructiveness of worms upon currant and gooseberry bushes. In Berks county apples and pears bloomed fully, but were destroyed very generally by the rain.

The fruit of Clarke county, Virginia, was greatly injured by frosts. The crop of apples, pears, and peaches in sections of West Virginia will be much reduced by killing frosts which followed the early appearance of blossoms. Much irregularity exists in the fruiting of the orchards of the Carolinas.

The correspondent from Queen Anne county, Maryland, says:

I do not think that I place fruit estimates at too low a figure. The amount of bloom was very great, but the frost of the 6th and 7th of May commenced the work of destruction. It was evident a few days after that there could not be a half crop, and since that time, the newly formed fruit has been dropping off, until very little is left. We suppose this was owing to the long continuance of cold, wet weather. An extensive peach grower, whose usual crop is from 8,000 to 10,000 boxes, told me that he did not think his entire orchard of 10,000 trees, would yield fifty boxes of fruit.

Williamson county, Texas. I have known but twice in the last ten years, when we have had such a crop of Mustang grapes. They are nearly grown and will be fit for making wine by the 15th July, and continue growing better until frost, some time in November. A very superior wine is made from this grape. I believe if all the grapes of this State that are now suffered to rot, were made into wine it would be worth more than the entire cotton crop of the State, and saved at half the expense and trouble. Two years ago I sent a barrel of this wine—my own make—to my brother, of the Massachusetts State council, who had it thoroughly tested by judges, who pronounced it a very superior wine. I have several orders for barrels of wine. I expect to manufacture largely this season, at a cost of less than fifty cents per gallon, sugar, barrels and all expenses included.

Sacramento county, California. At my Natoma vineyard, which contains 76 acres of vines, and 560 acres of land, of choice foreign varieties of grapes, I believe the yield will be 35,000 gallons of wine, and a large amount of raisins; and at my Duror vineyard of twenty acres, 8,000 gallons.

Maple Sugar.—The States giving increased attention to this production are respectively Massachusetts, (80 per cent. increase,) Vermont, (60,) New Hampshire, Wisconsin, Maine, New York, Minnesota, Iowa, and Pennsylvania.

Table showing the condition of the crops, &c., on the first day of June, 1868.

STATES.	WINTER WHEAT.		WINTER RYE.		WINTER BARLEY.		SPRING WHEAT.		SPRING BARLEY.	
	Average acreage compared with last year.	Average condition on the first of June, compared with last year.	Average acreage compared with last year.	Average condition on the first of June, compared with last year.	Average acreage compared with last year.	Average condition on the first of June, compared with last year.	Average acreage of wheat sown this spring, compared with last year.	Average condition on the first of June, compared with last year.	Average acreage of barley sown this spring, compared with last year.	Average condition on the first of June, compared with last year.
Maine	9.9	10.4	9.8	10.8	.....	.....	12.6	10.6	10	9.5
New Hampshire	10	10.3	10	10.6	.....	.....	10.2	10.1	10	10.3
Vermont	10.4	9.4	10	10.2	.....	.....	11.6	11.2	9.4	11.4
Massachusetts	10	9.2	10.4	10.1	10	9	10.2	9.6	10.1	9
Rhode Island	.....	.....	11	9.7	.....	.....	.....	.....	10.5	8.2
Connecticut	10	10.2	10.5	10	9.5	10	10	9.7	9.7	9.7
New York	10.5	10.5	9.7	10.4	9.7	9.8	10	10.5	10.3	10.3
New Jersey	10.3	10.2	10	9.7	9	9.5	9.5	10	8	9
Pennsylvania	10.3	11	9.8	10.1	9.5	10.1	10	10.6	9.9	10
Delaware	9.3	10.6	10	9	.....	.....	.....	.....	.....	.....
Maryland	10.9	12.9	9.6	10.3	.....	.....	.....	.....	10	9
Virginia	11.1	11.6	9.9	10.8	.....	.....	.....	.....	.....	.....
North Carolina	11.7	10.2	9.8	9.6	11	10	.....	.....	.....	.....
South Carolina	12.1	8.8	10	9.6	10	9.7	.....	.....	9	9.5
Georgia	11.1	8.4	9.7	9.6	9.7	9.8	.....	.....	9.3	9.3
Florida	.....	.....	10.8	.....	.....	.....	.....	.....	.....	.....
Alabama	11	8.7	9.8	9.4	10	9.3	.....	.....	.....	.....
Mississippi	15.3	10.1	10.4	10	8.6	9.3	.....	.....	.....	.....
Louisiana	.....	.....	9.5	10	.....	.....	.....	.....	.....	.....
Texas	9.4	8.2	9.4	9.8	8.3	8.1	.....	.....	8.3	6.3
Arkansas	13.1	11.2	10	10.3	10	9.6	.....	.....	10.5	10
Tennessee	14	10.2	9.9	9.9	11	10	.....	.....	10.1	11
West Virginia	13	11.7	10.3	13.7	7.8	9.7	9.3	11.5	9.5	10
Kentucky	9.9	9.8	10.2	9.9	9.4	9.2	.....	.....	11.5	11.1
Missouri	15	12.1	10.8	11.3	11.1	11.3	16	12.1	12.5	10.6
Illinois	10.4	10.7	9.6	10.7	9.6	10.3	12.8	11.2	10.1	10.5
Indiana	11	13.3	10.3	11.3	10	14.2	13.5	11.4	10.6	8.7
Ohio	10.5	11	9.9	11.1	9.8	9.3	12.2	11.1	9.7	10.3
Michigan	11.7	11.9	10.4	10.8	10.1	10.5	11.6	10.6	10.3	10.4
Wisconsin	9.9	10.3	10	9.5	10	10.2	11.8	10.4	9.7	10.4
Minnesota	11	10.1	10.2	12.2	11	11.7	13.3	12.3	11.2	11.8
Iowa	10	11.3	9.4	11.3	8.3	11	13	11.2	10.4	10.8
Kansas	12.5	11.5	9.8	10.7	9.4	9.1	14.5	11.3	10	10 6
Nebraska	8.4	7.8	10.8	9.4	10	8	14.8	10.2	11.1	10.1

Condition of the crops, &c.—Continued.

STATES.	OATS.		CLOVER.		SPRING PAST'E.	MAPLE SUGAR AND MOLASSES.	
	Average acreage sown, compared with last year.	Average condition on the first of June, compared with last year.	Average acreage compared with last year.	Average condition of clover fields on the first of June, compared with last year.	Average condition of pastures, compared with last year.	Average amount of maple sugar made this spring, compared with last year.	Average amount of maple molasses made this spring, compared with last year.
Maine	9.8	9.6	10.3	10.8	11.6	14.2	13.7
New Hampshire	9.7	10.5	9.8	10.8	10.8	15.2	15.8
Vermont	11.5	11.1	10	11.4	11.4	16	13.2
Massachusetts	9.1	9.5	10.3	10.2	10.7	18	17.3
Rhode Island	9.2	8	10.2	10.7	10.2	.....	.....
Connecticut	10	9.6	10	11.2	11.2	9.3	8.6
New York	10.6	10.8	10.4	11	10.7	13.5	12.7
New Jersey	9.4	8.6	10.4	10.3	10.2	.....	.....
Pennsylvania	10.1	10	10.3	11.2	10.7	10.3	10
Delaware	7.3	8	10	11	9.6	.....	.....
Maryland	9.4	9.9	10.3	11.2	10.9	.....	.....
Virginia	10.9	10.5	12.2	11.3	11.2	8.1	7.9
North Carolina	12.2	10.6	13	11.2	10.5	.....	.....
South Carolina	11.1	9.5	10.6	10	10.1	.....	.....
Georgia	10.9	10.2	11.9	11.4	11	.....	.....
Florida	10.6	7	.....	.....	11.6	.....	.....
Alabama	10.7	9.8	11.4	10.6	10.7	.....	.....
Mississippi	10.6	10.4	18	12	11.7	.....	.....
Louisiana	10	9.7	13.3	12	10	.....	.....
Texas	9.6	9	.....	.....	11	.....	.....
Arkansas	12.5	10.7	11.5	11	11.6	.....	.....
Tennessee	11	10.5	12.9	10.7	11.1	9.8	9.7
West Virginia	11.9	11.3	11.2	11.5	12.6	6.7	7
Kentucky	11.4	11.4	10.3	9.7	10.2	9.3	9
Missouri	13	11.6	11.1	11	11.7	8.6	8.1
Illinois	11	9.3	10.4	10.8	11.4	8.3	8.3
Indiana	10.8	11.5	10.5	11.2	11.5	5.4	5.4
Ohio	10.5	10.5	10	10.6	10.5	5.1	5.7
Michigan	11	10.8	10.5	10.6	10.1	10.2	9.6
Wisconsin	10.7	10.1	10.3	9.2	9.5	15	12.5
Minnesota	11.8	11.6	10.3	10.7	12.4	12.7	12.2
Iowa	11.1	10.4	11	11	11.8	10.7	10.7
Kansas	13.1	11.2	10.5	10.3	13.2	10	10
Nebraska	12.2	10.8	10.7	10.5	11.2	.....	.....

Condition of the crops, &c—Continued.

STATES.	WOOL.		COWS AND CALVES.		APPLES.		PEACHES.		PEARS.	
	Average percentage of last year's clip of wool still remaining in the county.	Date of annual shearing in your county.	Average condition of cows this spring.	Number of calves dropped compared with average of former years.	Average amount of apple bloom this spring.	Average condition of the crop on the first of June, 1868.	Average amount of peach bloom this spring.	Average condition of the crop on the first of June, 1868.	Average amount of pear bloom this spring.	Average condition of the crop on the first of June, 1868.
Maine	8.2	.....	9.9	9.4	11.1	9.5	.....	.....	11.5	10.5
New Hampshire	10	.....	9.9	9.2	12.5	13	.....	.....	10.5	10
Vermont	17.1	.....	9.9	10.2	11.6	12	.....	.....	10.3	10.5
Massachusetts	33.2	.....	10.1	10.6	12.8	12	9.2	10.2	8	10.1
Rhode Island	25	.....	9.2	10	12	11.5	11	10.5	10	11
Connecticut	18.7	.....	10.5	10	12.2	12	9	9	10.5	10.2
New York	18.8	.....	9.7	10.2	11.2	11	10.6	9.9	10.9	10.2
New Jersey	4	.....	9.6	10.3	12.4	10.3	9.1	7.6	9.7	8.5
Pennsylvania	12.6	.....	9.7	10.1	11.6	11	8.3	8.8	9.6	9.6
Delaware	.....	.....	9.3	9	10	8	7.6	4	9.6	7.6
Maryland	15.8	.....	9.5	9.9	11.3	8.6	9	5.8	9.9	10
Virginia	10.8	.....	9.4	9.4	9.6	8.3	7.3	5.5	8.5	7.7
North Carolina	12.3	.....	9.4	9.7	10.8	10.1	10	11	9.9	9.1
South Carolina	6.2	.....	11.7	10.1	11.4	14.7	11.1	15	10	16.6
Georgia	11.6	.....	10.8	10.2	13.7	13.2	14	16.9	9.6	11.7
Florida	10	.....	10.4	10	5	5	11	11.6	.....	.....
Alabama	15	.....	11.4	9.4	9.8	9.2	16.8	15.6	10	9.1
Mississippi	19.8	.....	11.4	11.7	14.4	15.2	20	20.7	11	10.1
Louisiana	.....	.....	9	8	8.3	11.6	10.6	18.9	10	9.6
Texas	8.6	.....	10.7	10.4	12.7	12	16.2	15.9	11	14
Arkansas	.....	.....	11.1	10.9	11.9	11.2	13.7	14.1	12	11.7
Tennessee	10	.....	10.3	10.6	12.5	9.8	13.8	8.6	12.7	9.6
West Virginia	3.3	.....	8.6	11	10.5	9.1	12.7	8	9.2	7.3
Kentucky	9	.....	9.5	10	8.8	6.5	10.7	6.4	9.4	5.8
Missouri	8.1	.....	11	10.3	10.6	8.6	15	12.7	10.1	8.3
Illinois	8.1	.....	10	10	9.2	8	11.7	9.4	9.7	7.9
Indiana	6.4	.....	10.2	10.1	8.7	7.7	12.9	12	9.9	9.6
Ohio	7.7	.....	9.4	10.1	11.2	10.2	8.5	9.4	9.6	9.5
Michigan	6.8	.....	10.5	10.6	11	10.6	8.7	10.2	9.9	10.1
Wisconsin	13.4	.....	10.6	10.3	9.1	9.7	.....	.....	8.8	9.6
Minnesota	15	.....	11.4	11.2	12.8	11.1	.....	.....	10.5	10
Iowa	10.7	.....	11.6	10.9	12.1	10.5	13.7	12.7	11.4	10.1
Kansas	11	.....	12.9	11.6	15	12.8	16.5	14.3	15	12.8
Nebraska	13	.....	11.6	11.9	10.8	9	11	9.6	11.3	10.7

EXTRACTS FROM CORRESPONDENCE.

AGRICULTURAL FAIRS.

A Louisiana correspondent, in referring to the benefits of agricultural societies and fairs, writes as follows:

The increased interest taken in our fairs affords a most satisfactory proof of the benefits resulting from the society. A large number of planters and farmers from remote parts of the State attended our last exhibition; and a general opinion seemed to exist that our efforts were destined to effect important reform in the agricultural interests of our State, the more rapid introduction and diffusion of labor-saving machinery, increased incentives to thorough tillage by the awards of premiums upon field crops, and the advantage derived from the discussion of agricultural subjects, as soils, manures, drainage, ploughing, fruit culture, &c., &c. We have endeavored to encourage the cultivation of sugar-cane and corn instead of cotton. Sugar-cane, we may say, is an unfailing crop in our State, and with good cultivation will produce three hogsheads of sugar of 1,000 pounds each, and six barrels of sirup, 40 gallons each, per acre. Louisiana sugar commands a high price in market—15 cents to 18 cents per pound, and sirup from 85 cents to $1 30 per gallon; and this high price will continue for many years. Corn has been selling at from 85 cents to $1 40 per bushel. Since our last fair there have been three neighboring farmers' clubs organized.

COLORED MEN AS AGRICULTURAL LABORERS.

Our correspondent in Greenville district, S. C., in speaking of the condition of their lands and the trouble and expense attending their restoration, writes as follows:

The land is filled with a growth of briers and young sprouts, which appear on worn-out fields. The farmer has a troublesome job before him; one-horse teams and narrow ploughs will not do the work; they only mix the soil. Double teaming, getting down to the subsoil, and turning the soil upside down, is the only way to get at the root of the evil. Harrowing the land, after ploughing in this way, pulls out the roots and exposes them to the sun.

Taking these facts into consideration, 15 acres of land, free of rent for three years, was offered, on condition that it be cleared and fenced. One colored man, with a wife and children, took this offer up. He contracted in October, 1866, and by the following Christmas day had built his house and moved into it. He cleared half the land that winter, in time to plant corn, pumpkins, sugar-cane, watermelons, peas, potatoes, and garden vegetables. He supports his family by his trade as carpenter. The following October the offer was increased to five years. This attracted the attention of four more families, who have located and built their houses. They are good axe-men and very fair mechanics. It is surprising to see what they can do in the woods with a few tools. They cut the timber for a log house in a remarkably short time, split out shingles from the trunks of large oak trees, bark the small pines for ribs, place the timbers, nail on the roof, and move in—making a fire on the ground floor; then, with rock and clay, lay a hearth, run up a chimney on the outside, split timber for a floor, plaster up between the logs with clay, dash on a coat of whitewash; then clear land, split rails, and fence in a patch, plant fruit-trees, hire out, or cultivate other lands on the shares. These strong-armed, able-bodied men are the very foundation on which the clearing-up and preparation of this land for scientific agriculture depends. Without the black man the south would turn back into a wilderness, or a sparsely-settled, wretched system of small patches.

GRASSHOPPERS.

Anderson county, Texas.—In October last the grasshoppers came upon us from the northwest in great numbers, but too late to do injury to the crops. They burrowed in the ground, and laid their eggs, which hatched in February. The young came to maturity, and left May 1st. They did great mischief in the interior, causing, at one time, apprehensions of famine; many planters being forced to plant their crops four times; but now the prospect is fair for a good crop. We are indebted to the prevailing southeasterly winds of September and October for their visit, and to the opposite current of April and May for their disappearance.

Gillespie county, Texas.—The entire crop of wheat and rye destroyed and corn badly damaged by grasshoppers, between the 17th and 20th of May.

Montgomery county, Arkansas.—The wheat was nearly all destroyed in this county last fall by grasshoppers. A few acres were sown after they left or died, say about Christmas, which looks tolerably well, for late sowing.

Montgomery county, Iowa.—The grasshoppers are using up the wheat and oats; not so bad on the corn.

Warren county, Iowa.—The grasshoppers destroyed at least two-thirds of the winter wheat, beginning their ravages about the 5th of October last. We have them here now in great numbers, yet vegetation is not much injured.

Washington county, Nebraska.—The grasshoppers are doing a great deal of damage in this county.

Dakota county, Nebraska.—The grasshoppers have hatched out in myriads. The farmers are much alarmed; some of them predict almost the entire destruction of the wheat crop.

Douglas county, Nebraska.—This has been a season favorable to the planting and growth of spring crops, but the presence of grasshoppers deterred planting to some extent. At this date they appear to threaten serious damage.

Shawnee county, Kansas.—The grasshoppers destroyed most of the wheat last fall.

Crawford county, Iowa.—Grasshoppers have destroyed all wheat sown on new ground. Fears are entertained that they will take the whole crop this season.

Madison county, Iowa.—The grasshoppers are eating some wheat on new ground; not doing much damage to other crops yet, but are numerous.

Audubon county, Iowa.—Spring wheat is our dependence, and the present prospect is very dubious, as the grasshoppers are taking all before them. Some wheat fields are wholly destroyed; corn not yet so badly eaten; gardens used up. What the result will be none can now guess.

Harrison county, Iowa.—The grasshoppers continue their ravages in this part of the west. They are still hatching out. The new-ground, or "*sod wheat*," has suffered most. They have not injured corn to any extent, nor do they eat sorghum.

Harrison county, Iowa.—The grasshoppers came here last August by the million, and deposited their eggs all over the country. These have been hatching from the first thawing of the ground, the last of April, till the present time. Those hatched earliest seemed to be killed by the cold rains, but such as have hatched since the rains are growing and eating gardens, fruit, and crops of every kind; but they are scattered alike over farms, open prairie, and groves. If they should flock to the cultivated lands there are enough of them here to consume the whole crop. Some farmers are ploughing up their wheat land to plant in corn, hoping that the grasshoppers may leave in time to permit the making of a crop of corn.

Conejos county, Colorado.—Countless millions of minute grasshoppers are here, and, in fact, throughout the San Luis Valley, and are destroying everything green as fast as it makes its appearance above ground. The farmers here have become discouraged, and have lost all hope of raising anything the present season, arguing that these minute grasshoppers cannot well leave here until they have wings, when it will be too late to raise a crop.

Utah county, Utah.—Grasshoppers doing great damage in this county to wheat and fruit trees.

Box Elder county, Utah.—Apple trees were injured by grasshoppers last summer; many bloomed the latter part of summer, when putting out new foliage, after the grasshoppers had passed.

Jefferson county, West Virginia.—The 17-year locusts are beginning to make their appearance.

De Kalb county, Alabama.—There are millions of locusts in our forests, the same species that we had in 1856, I think it was.

Springtown, San Pete county, Utah.—Last fall we were visited by vast numbers of insects of the locust tribe, here commonly called grasshoppers; but, I think these insects are almost identical with the red-legged locust, as described by most writers on natural history. They ate off almost everything in our gardens and much from our grain fields; nothing seemed to come amiss to them—not even tobacco plants. In some few instances peas, beans, potatoes, tomatoes, squashes, and such like were rejected by them, or rather let alone, chiefly, we presume, because the vines were old and tough. They laid their eggs and took their flight westward. About the middle of April the eggs began to hatch out, and the young ones are now flying about, devouring our young crops of every description. In some few cases where they made an early attack the grain is beginning to grow again. Judging from appearances, I should say that at least two-thirds of this year's crop has been destroyed by them.

Austin county. Texas.—Already, in confirmation of my fears, comes advice from two eye-witnesses, of the ravages of grasshoppers in Washington and Fayette counties. In the former, they devour all the corn sprouting, and owners hesitate to replant, being afraid of a repetition of the visit. In Fayette county the gardens have been destroyed by the grasshoppers, the plants dying off. On the sixth of April there was a heavy thunder-shower, which destroyed many of the grasshoppers.

Red River county, Texas.—I regret that I cannot make a more favorable report with regard to wheat. Large quantities were sown and it looked unusually well; but on the first day of November, suddenly the sky was darkened partially, and immense numbers of grasshoppers settled on the country; so numerous, indeed, that in a very few days they ate up all green vegetation, first destroying the wheat. I have been living here for twenty-five years, and never knew of such a visitation before. We all continued to sow wheat as long as there was any seed, believing that a good frost would destroy the grasshoppers; but they proved to us that they could not only endure a heavy frost but a considerable freeze. They continued until about Christmas, when a severe freeze of several days' duration destroyed them, but leaving the earth filled with their eggs, and innumerable young ones are now making their appearance, which may destroy our spring crops before they can fly away to the country from whence they came, which I understand is their habit. The destruction of the wheat crop is a very heavy loss to the country at this time, when struggling to rise above the grasp of poverty caused by the war.

POTATO BUGS.

Ford county, Illinois.—As there was a great loss in potatoes by the potato bug, I send you some of them, that you may see them. They seem to be of recent origin here. Those that we have had in years past were larger and as long again. The prospect is that but few will plant potatoes, as they lost their crops last year. I send some of the eggs as they appear before hatching.

[The eggs enclosed are those of the ten-lined spearman, or *doryphora 10-lineata.*]

Columbia county, Wisconsin.—The potato bug (*ten-lined spearman*) have made their appearance in large numbers, and the prospect of a crop is not good at this time.

Fond du Lac county, Wisconsin.—Potato bugs have made their appearance in great numbers. The Ripon Farmers' Club are making many experiments for their destruction. Should any good derive from these experiments, I will report them to the department.

Jackson county, Wisconsin.—Potato bugs are very bad.

STORMS.

Kendall county, Texas.—On the eve of the 19th we were visited by a hail and wind storm, which injured all kinds of grain, unroofed houses, uprooted trees, and doing much other damage. Some of the hail-stones weighed from one to four pounds. The storm embraced a belt of about 14 miles from north to south, exhausting itself in the Gulf of Mexico.

Whiteside county, Tennessee.—A severe hail-storm on the 6th instant—stones of the largest size, averaging $1\frac{3}{4}$ inch in diameter; none smaller than half inch, and many as large as two and a half inches in diameter.

The shower continued for 12 minutes, accompanied with heavy rain and continued thunder. The atmosphere had a yellowish green appearance. Thermometer fell 22° in 30 minutes. In extent this storm was very limited, covering an area of about four miles in width, and fell among the mountains for about five miles; consequently the damage to crops was but slight.

Morgan county, Georgia.—The great freshet, accompanied by wind and hail, which swept over this county on the 12th of May, seriously injured crops, and washed many acres of land away into the bottoms of rivers and creeks. It washed up and buried with sand several acres of my best cotton land.

CONDITION OF CROPS.

Tatnall county, Georgia.—There has been a considerable increase in acreage planted in corn the present season and less of cotton. The raising of rice sufficient for home consumption is now attracting the attention of farmers, and the prospects are very promising. Land that will produce from eight to ten bushels of corn to the acre will yield double the quantity of rice. Prior to the late war we could purchase rice at four cents, consequently the farmers in this section of country could well afford to purchase; but now they find it more profitable to raise it than to purchase at 12 cents per pound, which is about the average price.

Pike county, Mississippi.—This year much more attention has been paid to the raising of vegetables, and our gardens are in prolific bearing. Some of the seeds received from the department are proving great additions to our varieties. The breadth of land in corn is greater than usual and it is promising well. About the same acreage, or nearly so, is planted in cotton as last year; so far it is promising. The distinctive feature of the present crop is that, with the exception of meat, the county will raise everything that it will consume; the cotton will be its surplus.

SHEEP.

Berkshire county, Massachusetts.—In April many sheep were lost from grub in the head, and general weakness, the latter probably the result of long confinement.

Vinton county, Ohio.—Our loss in sheep has been from grub in the head. If any of your correspondents know a remedy we would like to know it.

Giles county, Tennessee.—The dogs, "curs of low degree," have played havoc with the sheep. Oh for a dog law! A neighbor of mine lost 35 fine south-downs in one night, among them two bucks worth $100 each, either one worth more than all the dogs in the county.

THE DAIRY.

Orleans county, Vermont.—The dairy business is the leading interest, and is gradually increasing. We keep more cows and keep them better than formerly. Twenty-five years ago 100 pounds butter to a cow was called a good yield; now 200 and even 250 pounds to a cow are sold from a dairy of 10 or 20 cows. But little cheese is made in this county.

IMMIGRATION.

A casual correspondent writing from Santa Barbara, California, says:

The lower coast country of the State, settled since 1770, and for a long time neglected, is now receiving a large accession of farming population of Americans and Germans; some 30,000, it is estimated, have come in since last summer between Monterey and San Diego. Below Point Conception every one of the Mediterranean fruits and plants are cultivated, as well as in Italy or Syria, and wheat and barley of No. 1 quality.

SPANISH FEVER.

The following is from our reporter in Ralls county, Missouri:

As early as 1853, a large trade in Mexican and various grades of Spanish cattle was established, and many enterprising stock men of this county engaged in it. In the latter part of the spring following a fatal disease, called Spanish fever, broke out in those sections of the country where these foreign cattle had been kept in the preceding fall, confined entirely to the native herds. This scourge soon ran its course in 1854 and disappeared; but in each succeeding year the same trade was continued, followed by the same special developments until 1858, when it seemed not only our native stock but the foreign also were smitten with this terrible malady. Not only cattle but horses and sheep also seemed in this year liable to the contagion.

The type of the disease was alike, and the same symptoms and fatal results followed. An acute inflammatory fever, with loss of strength, flesh and appetite, with wildness, in some instances amounting to madness, were the general symptoms. No certain remedies were found, though among young animals good nursing and shelter, if quiet and rest could be secured, would generally avail. The wide-spread disaster, endangering the whole stock of the county, in 1858, put an end to the trade without any special effort. Since that time we have not been troubled with Spanish fever as an epizoötic. There was one peculiarity to be observed in the spread of the disease; it never crossed a considerable stream except with the Spanish cattle, so that one side of a river might be infected and the other healthy. Ordinarily, too, it was confined to the prairie, and water-courses passing through or near it, rarely, if ever, penetrating an extensive wood region. Thus, in this county, in the Mississippi belt of timber, averaging some 15 miles in breadth, a case of Spanish fever in epizoötic form is unknown; and so of Salt river belt, a timber region of from four to six miles in breadth.

MINERALS DISCOVERED.

Jackson parish, Louisiana.—Mr. Kent M. Dowden, of Indiana, has been prospecting in our parish, and has discovered good lead ore and coal, specimens of which I will send you as soon as an opportunity offers. He has also traced a belt of curious land which extends nearly the entire length of our parish, and is not in any place more than three miles wide, in which he finds whole trees of large size completely petrified. The subsoil of this belt is red clay, and on top of that is 28 or 30 inches of alluvial, and the petrifactions appear to be between the alluvial and the clay. The present growth of timber is pine forest and oak, with heavy and thick undergrowth. Mr. Dowden has specimens of these petrifactions, which will also be sent to you as soon as possible.

PROTECTION AGAINST WOOL-BUYERS.

The isolation of farmers favors imposition by combination for the purchase of their products; and in nothing do they suffer greater injustice than in the arbitrary rules either tacitly agreed upon or adopted openly in convention by professional wool-buyers. The evil has been growing, until its proportions are now monstrous and unendurable; and it becomes necessary, in the present unprofitable era in wool-growing particularly, that this department should use its influence in opposition to injurious combinations.

The Woollen Manufacturers' Association of the Northwest met in Chicago on the 19th of February last, and adopted the following preamble and resolutions:

Whereas it is for the interest of both the grower and manufacturer of wool, as well as a protection to the honest grower, that a uniform standard should be adopted throughout the

west, as to condition and manner of putting up fleeces, and deeming it important that uniform rules, so far as practicable, be adopted by the buyers and manufacturers of the west; it is

Resolved, That the members of this association will be inevitably [invariably?] governed by the following rules in the purchases of fleece wool made by them, and respectfully invite all western dealers to conform to them, viz:

1. Merchantable wool shall be the standard for price, and shall be well washed, free from tags and all filth, and tied with only what twine is sufficient to hold the fleece compactly together.
2. On all unwashed fleeces, fleeces stuffed with tags, murrain wool, or any other foreign substance, black fleeces, and all washed buck fleeces, a deduction of one-third shall be made
3. On unwashed buck fleeces a deduction of one-half shall be required.

April 19, 1867, a convention of wool-buyers, held at Rochester, New York, adopted almost identical rules. The Ohio State buyers' association passed similar resolutions last year, and have recently reaffirmed that action.

June 2, 1868, a convention of wool-buyers at Detroit adopted the following resolutions:

1. A deduction of one-half on greasy and gummy unwashed buck fleeces.
2. A deduction of one-third on heavy washed buck fleeces.
3. A deduction of one-third on all other unwashed or partially washed fleeces, and on cotted wool, and on unconditioned fleeces made unmerchantable by stuffing with tags and dead wool, or by an excessive use of twine, and on fleeces that have been divided for the purpose of deceiving the buyer.
4. In purchasing wool thus prepared for market, to pay a price proportionate to its relative worth as to texture, strength, and other desirable qualities.

To the first rule of the Woollen Manufacturers' Association, so far as it honestly opposes the practice of including excessive filth, dirt, and tags in fleeces, there is no objection. All attempts at cheating in putting up wool are highly reprehensible, and should be frowned upon by all honest men. There is a vast improvement, however, in this respect within a few years past, and few complaints of dishonest practices have reached the department.

Of the remaining rules it can only be said, no more palpable cover for fraud could be framed; no more direct invitation to swindling could be addressed to the dishonesty of the buyer. It is not pretended, after such deductions, that a uniform price shall be paid for all classes of wool; discriminations in price may also be added *ad libitum* to such deductions. It is proper that quality and condition should modify price in wool, as in beef, butter, or other product; but a deduction of one quarter of beef because it is grass-fed rather than corn-fed, or one-third of the weight of butter because it contains too much salt or too much buttermilk, would be arbitrary and inadmissible.

All unwashed fleeces of Merino rams of pure blood may be claimed to be "greasy," and so subject to one-half deduction, whether the oil or yolk shall weigh one pound or five; and all similar washed fleeces may be held to be "heavy," and, therefore, relentlessly reduced one-third, whether the loss in scouring shall be 30 per cent. or 60; an ounce too much of twine in a fleece of six pounds must be punished by confiscating two pounds; any fleece not absolutely clean may be declared "partially washed," and placed in the same category with the dirtiest unwashed; and the presence of 5 per cent. of cotted wool must be atoned for by the absence of 33 per cent. of net returns.

These rules apply as well to an unwashed Cotswold fleece, that shrinks in cleansing but 30 per cent., as to a Merino, that loses 70 per cent., so that the same deduction is required upon two fleeces, weighing each 14 pounds, unwashed, one of which loses 9.8 pounds, and leaves 4.2 pounds of cleansed fibre, while the other loses but 4.2 pounds, and leaves of cleansed wool 9.8 pounds. And similar if not equal disproportion exists among grade Merinoes. And yet such rules are assumed by interested parties to be "for the interest of both grower and manufacturer of wool," and "a protection to the honest grower;" and such arbitrary and fraudulent regulations constitute the "uniform standard" to be adopted throughout the country.

It may be difficult to prevent altogether this injustice, but it is time that wool growers should, individually and by private understanding, unitedly, and, if necessary, by direct vote of neighborhood meetings, refuse to sell under these rules. If they will thus take the trouble to unite and act in concert, not to fix abitrary prices of wools, but to prevent gross injustice to themselves, buyers will quickly conform to their views and pay prices in proportion to quality and condition.

Harmony between buyers and sellers of wool is desirable, but not at the expense of producers. Eternal discord must result from such injustice, and eventual harmony can only come by fair and equal dealing. The buyers, like other carriers and go-betweens, may be a necessary evil, eating up the substance of producers, but proving a convenience in marketing and collecting; but farmers should neither themselves combine to do injustice nor suffer combinations to filch from them the proceeds of their industry.

SPECIAL STATISTICS OF FARM RESOURCES AND PRODUCTS.

Continued.

1. What is the average percentage of increase (or decrease, if cases of decrease exist) in the price of farm lands in your county since 1860?

2. What is the average value of wild or unimproved tracts of land; and what are the character, quality, and capabilities of such land?

3. What marked or peculiar resources have you in soil, timber, or minerals; and what is the state of their development, or inducement for attempted development?

4. What crops, if any, are made a specialty in your county; and what facts illustrating their culture, quantity, and the profit derived?

5. What kinds of wheat are cultivated; and which of them are preferred; and why? What is the time of drilling or sowing? For harvesting? And what is the amount and mode of culture? What proportion is drilled?

6. What grasses are natural to your pastures? How many months can farm animals feed exclusively in pastures? What would be a fair estimate, per head, of the cost of a season's pasturage of an average herd of cattle?

7. What are the capabilities of your county for fruit? What fruits are best adapted to your soil and climate? Give some *facts* concerning yield and profit.

OHIO.

1. With but two exceptions all the counties of this State, making returns, report an advance in the value of farm lands since 1860, the general average showing an increase of from 30 to 35 per cent. as compared with the last census. Hardin county, in the interior, and Ottawa, on Lake Erie, report an increase of 100 per cent.; Lorain and Jefferson, 75 per cent.; Athens, 60; Lucas, Hancock, Sandusky, Licking, Tuscarawas, and Highland, 50; Wood, Warren, Erie, Columbiana, 40; Clark, Greene, Medina, Fairfield, Wayne, Carroll, Holmes, Jackson, and Fayette, from 30 to 35; Williams, Fulton, Henry, Mercer, Butler, Ashland, Marion, Union, Geauga, Wayne, Starke, Morgan, Vinton, Lawrence, Ross, from 20 to 25; Logan, Seneca, Portage, and Washington, 15 per cent. Huron reports no change since 1860, while our Wyandot correspondent alone reports an actual decline.

2. About one-third of the counties report no lands under the head of "wild or unimproved;" others have but little of that class, while the values of those reported average from $15 to $20 per acre, the lowest average for any county

returned being $6 per acre. In Williams county, in the northwest, these lands are slightly rolling, covered with a thrifty growth of beach, sugar, ash, elm, oak, hickory, walnut, basswood, poplar, &c.; soil chiefly a sandy loam, interspersed with limestone gravel, rich in quality, and capable of producing heavy crops of wheat, corn, oats, grass, &c. Fulton, timbered land; rich clay loam and sandy oak openings, suited to wheat, corn, &c. Lucas, lands generally good; soil variable, from rich vegetable mould to light sand, the bottom lands very productive; the high lands especially adapted to fruit; prices range from $5 to $100. Wood, heavily timbered mostly; excellent soil; surface nearly level; productive when cultivated. Henry: the greater part of this county is included in the famous "Black swamp," reaching over an extent of 120 by about 40 miles, said to be unsurpassed in the State for fertility of soil; surface high and level, with dense growth of forest trees; soil from 3 to 12 inches deep, composed of decayed leaves and vegetable matters; subsoil a yellow clay loam, rich in lime, potash, and silex. Hancock, wild lands; generally poor quality; good capabilities for pasture. Hardin, quality of land from good to best, the larger portion very rich; will grow all the crops grown in that latitude. Logan, large tracts in the "Virginia military reservation" are held by non-residents. Van Wert and Clarke, timber land; rich, deep soil, best adapted to grazing, but will produce the cereals. In Ottawa, on Lake Erie, the wild lands are chiefly marsh and timber, there being not less than 20,000 acres of marsh in this county, valued at $1 to $5; the timber averages $20 per acre; soil excellent. In Sandusky, also, these lands are wet, but suited to grain when drained. Lorain, less than 500 acres of wild land; marsh; rich muck, one to three feet deep; needs ditching, when it will produce grass, corn, and potatoes. Marion, mostly timber, worth $30 per acre. Union, soil a loomy clay; no swamps; when cleared is good for grain and grass. In Stark, with the exception of 1,000 or 1,200 acres of tamarack swamp, the timber lands are owned in small tracts attached to farms. Morgan, well timbered; soil rich; in some parts of the county the surface is broken, but abounds in coal, petroleum, and salt. Washington, the unimproved land is of the poorest quality. Athens, mostly inferior for cultivation, but affords good pasturage for sheep and cattle. Vinton, most of the wild land is poor and rough, though there are some good lots held by speculators; there is excellent timber on the land; light alluvial soil, adapted to stock-raising and fruit culture. Jackson, hilly and broken; thin sandy soil, capable of producing corn, wheat, oats, fruit, pasture, &c. Lawrence, wild land; broken and hilly; well timbered. In Fayette the unimproved lands are equal in fertility to the improved lands, but require draining. In many counties the only unimproved land reported is in wood attached to farms and reserved for fuel, fencing, and building purposes.

3. Beside the rich and generous soil which renders Ohio pre-eminently an agricultural State, she is possessed of great mineral wealth, and is still rich in timber in many sections. Iron and coal of superior quality and in great abundance, the former being reported in Lucas, Lorain, Columbiana, Jefferson, Tuscarawas, Athens, Vinton, Jackson, Lawrence, &c.; and the latter, in Lucas, Medina, Portage, Wayne, Stark, Columbiana, Carroll, Jefferson, Tuscarawas, Holmes, Morgan, Washington, Athens, Vinton, Lawrence, and other counties. It has been estimated that the amount of iron ore along the course of the Little Beaver, from three miles above New Lisbon, would be equivalent to a continuous bed ten feet thick on both sides of the stream to its junction with the Ohio river. In Jackson and Lawrence counties, in the southern part of the State, the iron interest is quite extensive, each county having 13 furnaces in successful operation.

In most counties the coal mines are not worked beyond the requirements for furnaces and domestic use, though the deposits in some localities are almost inexhaustible and of superior quality. In Vinton the veins are from two to five feet thick, and in Athens they are said to be six feet in thickness, accessible at a

moderate depth by shafting, the latter, known as the "Hocking coal," claimed to be the most extensive and important coal-field in the State. A vein underlies the city of Steubenville, in Jefferson county, and is supposed to extend over a large area, now in use for smelting purposes; the vein is four feet thick, and about 200 feet below the surface. There are four shafts, one in the city and three immediately below, now taking out from 3,000 to 5,000 bushels of coal each per day, and two shafts, a short distance below the city, have recently been put in operation. In the vicinity of New Lisbon, Columbiana county, there are seven strata of bituminous coal, varying in thickness from one to seven feet, the coal being considered as good as the best Pittsburg coal.

Abundance of limestone is found in Fayette, Highland, Lawrence, Jackson, Holmes, Tuscarawas, Stark, Marion, Erie, Ottawa, Warren, Hardin, &c.; sandstone, freestone, and other varieties of building stone are found in Columbiana, Jackson, Holmes, Erie, Butler, &c.; fire and potter's clay in Jackson, Vinton, Holmes, &c.; salt in Jackson, Athens, Morgan, Tuscarawas, Columbiana; saltpetre and copperas in Jackson; a superior quality of grindstone in Lorain; plaster of paris in Ottawa; chalybeate in Warren; peat in Logan, and ochre, now being worked, forming a body for paint and for exposed work, said to possess much merit.

Our Henry correspondent says:

The most marked peculiarity of our resources is in the fertility of the soil, its adaptation to the staple agricultural products of the temperate zone in the order named—maize or Indian corn, wheat, rye, oats, potatoes, clover, hay, buckwheat, fruits, (apples, pears, peaches, grapes, cherries, strawberries, and all the small fruits,) and the convenience of transporting all these products to a good market at Toledo, Ohio, where the price of wheat and corn is generally 15 cents per bushel less than at New York city. The modes of transportation are the Wabash and Erie canal, running through the centre of the county, six feet in depth, 40 feet bottom, and 60 feet wide at surface of water, connecting the waters of the Wabash with Lake Erie; also by the Miami extension canal to Cincinnati. Freight per canal to Toledo, distance 40 miles: for corn 4½ cents per bushel, in bulk; wheat 5 cents per bushel; other freights in proportion. The canal affords an unlimited water-power for all kinds of machinery at low-water rent. The other mode of travel and conveyance for freight is the Toledo, Wabash, and St. Louis railroad, 40 miles to Toledo, connecting there with numerous railroads to all points. Freight one cent more per bushel than by canal. One of the largest bodies of good oak timber in the State has been in great demand for ship timber and staves. As an evidence of the size of the trees, I need only say that the average number of squared feet in a tree is 90 feet. Our forests abound in elm, sugar-maple, shellbark hickory, black and white walnut, basswood, cottonwood, black and white ash, white wood or yellow poplar—the last three varieties pretty much used up.

In Hardin great trade is carried on in timber, in the form of lumber (staves, spokes, railroad ties) and wood, (hoop-poles, &c.,) and there are but few better places for steam saw-mills, shingle and lath mills.

There are six iron furnaces in Vinton in successful operation; also a number of saw-mills, making a good deal of lumber, which is worth from $1 50 to $2 per hundred. There are also several potteries, where a large amount of stoneware is made and sent in all directions.

The Athens observer writes:

Heretofore the Hocking canal has been the only outlet, and operations in coal, thus far, have been confined to a few parties situated in nearest proximity to the canal, by whom from 80,000 to 100,000 tons of coal per annum have been sent to market since about the year 1860. The excellent quality of the Hocking coal is now well established, and the extent of the mines—six feet in thickness, accessible at a moderate depth by shafting—leads to the conclusion that this is the most extensive and important coal field in the State of Ohio. The Mineral railroad, now about completed, from Mineral station on the Marietta and Cincinnati railroad, commands access to this extensive coal deposit, and preparations are already made for transmitting coal from this source to Cincinnati and intermediate points. The Hocking Valley railroad, from Columbus to Athens, which will be completed next season, will furnish another outlet for the central portion of this valley by the Marietta and Cincinnati railroad and its connections at Athens. Measures have been taken for the continuation of the Hocking Valley railroad from Columbus to Toledo, furnishing direct communication with the northwest.

For more than 20 years about 50,000 barrels of excellent salt have been made annually in Athens county. Salt water, varying in strength from six to nine per cent., is found in several localities by boring from 600 to 800 feet deep, and the brine thus obtained is speedily reduced to salt by the use of coal, generally conveniently at hand.

In Morgan one salt well deserves more than a passing notice. The salt water is thrown up 16 to 20 feet above ground into tanks and reservoirs by the gas which is retained in a large inverted reservoir (above the salt water basin) and conducted in a tube beneath the furnace and salt kettles, furnishing the only fuel used for evaporating the salt at these works. It is just across the river from McConnellsville, near the lower ferry, and is the great curiosity of salt-making in our county. The well has never required pumping. The gas was not much used as fuel until within 12 or 15 years.

Sandusky county:

We have large quarries around Sandusky and on the islands of a fine white limestone, which can be quarried almost any size used in building, and is shipped largely to other lake ports and burnt into lime. We have also large quarries of a good, hard blue limestone around Sandusky, which is suitable for range work, and is extensively used for building purposes. There is also an abundance of soft white limestone in Margaretta township, six miles from the lake, and fine sandstone in the eastern part of the county, valuable for building purposes.

John M. Milliken, of Butler county, writes:

Our resources are found in our rich, productive soil, valuable timber, abundance of stone; in the number of our creeks and rivers, affording abundance of water for stock and for the construction of extensive hydraulic works in our favorable geographical position and temperate climate, being generally exempt from extremes of heat or cold, excessive droughts or long-continued rains. Our resources are exceedingly well developed, having the advantages of three railroads passing through the county, the Miami canal, which extends from Lake Erie to the Ohio river, and some 15 turnpike roads, which thoroughly ramify the county.

4. The agriculture of Ohio is general and varied; the farmers generally produce the cereals, the domestic animals, and give some attention to fruits. While this is true, it is also patent that certain sections of the State give greater prominence to one branch of production than to others; thus the dairy interest is prominent in the first and second tiers of counties from Lake Erie, from Sandusky eastward. Immediately upon the lake shore, and on the islands towards its southwestern borders, grape-growing is the prevailing industry, peaches also being abundant in favorable seasons. In the Miami and Scioto valleys corn is the leading product, sold principally in Philadelphia and New York in the form of beef. In the eastern and southeastern portions of the State a greater variety of production obtains, the leading interest now being wool-growing, which has for a few years past become an important branch of farming in all parts of the State. Wheat is grown in all portions of the State, but most extensively in the western and southwestern portions, the heaviest production being found in Brown, Butler, Champaign, Clark, Clermont, Cuyahoga, Greene, Hamilton, Hancock, Highland, Huron, Miami, Montgomery, Muskingum, Pickaway, Preble, Ross, Seneca, and Warren. Many counties report corn and hay as the principal products, both fed to beeves. A weekly stock train of 10 to 20 carloads of cattle for Baltimore, Philadelphia, and New York is reported as an agricultural incident common in Fayette. Lucas claims for her best farms a yield of 75 bushels of corn per acre, and two tons of hay. In Clarke "the cereals are all profitable." In Lake potatoes may be considered a specialty and are very profitable. In Union "one-fourth the land is in corn, and one-half in grass." In Seneca the cost of growing corn is placed at 50 cents, and of wheat at $1 per bushel.

Our Medina correspondent says:

Tons upon tons of hay were annually pressed into bales and shipped off to enrich other parts of the country, and our own fields sadly show the effects of such a course; but now, instead of exporting grain as we did then, we import our flour, some corn, and other feed for our stock.

5. The kinds of wheat mentioned in returns are the White and Red bearded and bald varieties of the Mediterranean, "Lambert or weevil-proof," Lancaster, Tappahannock, Diehl, White Siberian, Soule, and Blue Stem. The prefer-

ence is given to the Mediterranean in Greene, Washington, Clarke, Lorain, Medina, Jefferson, Licking, Wayne, Highland, Henry, Union, Sandusky, Logan, Hancock, Carroll, Columbiana, Stark, Fairfield, Miami, Tuscarawas, Erie, Warren, Fayette, Ottawa, Ross, and Lawrence; for Weevil proof in Van Wert, Marion, Williams, Vinton, Jackson, Mercer, Athens, Holmes, and Hardin; for Tappahannock in Portage, and for Blue Stem in Morgan. In Fairfield a wheat known as "Pennsylvania Red" was last fall sown to the exclusion of every other kind whenever it could be obtained, for the reason that it was found in the summer of 1866 to have survived the frosts of the previous March, which destroyed nearly all of other varieties. In Highlands a wheat called Red Chaff Mediterranean is most cultivated. It was brought from Chester county, Pennsylvania, seven or eight years ago; is not liable to be winter-killed nor subject to the ravages of the weevil. The "yield is from 10 to 30 bushels per acre, according to culture." Nearly all is drilled, except where sown among corn, and sometimes even then by a one-horse drill made to pass between the rows of corn.

The period of sowing commences about September 1; in one or two cases an earlier date is given, and in a few others September 5, 15, and 20 are mentioned; the average of the returns is September 9. The termination of the season for seeding is given variously; September 20th being the date most frequently reported, the 15th and 30th also favorite dates, a few naming the 25th, and a small number October dates, from the 7th up to the 30th; the average might be placed at September 24. The time of harvesting winter wheat averages from July 1 to July 12; in the southern part of the State June 25 to July 5, and in some counties in the north July 4 to 15, are average periods for harvesting. The reporter in Warren county gives June 15 to July 1, the earliest period indicated. From about half the counties of the State the proportion of acreage drilled is reported. Were the product the same in each county, less than 30 per cent. drilled would be indicated; but taking into consideration the fact that the best wheat counties show the largest proportion of drilling, the true average of the returns would show about 40 per cent. put in with the drill. The influence of agricultural implement establishments is shown by reference to Stark county, where "nine-tenths" is drilled, or to Clarke, from which "two-thirds" is the report. Among the counties putting in half or more than half of the seed by machinery are Greene, Marion, Montgomery, Clarke, Seneca, Licking, Fairfield, Highland, Butler, Miami, Erie, Warren, Fayette, Ross, Wayne, Hancock, and Stark, while Van Wert, Washington, Wood, Lorain, Williams, Fulton, Lucas, Portage, Tuscarawas, Mercer, Ottawa, Athens, Hardin, Wyandot, Henry, Sandusky, and Carroll drill less than half; Geauga returns "small;" Medina "can't afford to drill;" Vinton and Jefferson "but little;" Morgan "very little," and Jackson "none." The mode of culture is various. A few counties will indicate the modes practiced in others. In Miami, where three-fourths is drilled, the ground is "well ploughed, harrowed, and rolled." In Ross wheat is principally drilled in corn land without ploughing, but stubble land is ploughed. It is a practice in Jackson to plough in June, and again in September, sowing broadcast and covering with the harrow. In Ross clover sward is ploughed, rolled, and drilled, or oats stubble manured and ploughed, &c. In Henry preference is given to clover over bare fallow, though newly cleared land is employed by many, and others sow in standing corn and cover with a shovel plough.

6. The natural grasses reported, blue grass, June grass, and red-top. White clover abounds, but is displaced with red-top as far as possible. Timothy is also seeded in pastures when practicable. The average period of pasturage lacks little of seven months, and the price per season averages $8 50.

7. Ohio has more than an average share of fruit, though its different sections have widely different capabilities. In the settlement of the State, and until

within a few years past, apples and peaches grew without care and fruited profusely; but in the central and southwestern counties, except on the margin of the Ohio and other streams, destruction by frost is the rule, and general exemption from injury is now the fortunate and rare exception. Among the hills of the east and southeast apples are a moderately sure crop, and peaches are occasionally obtained in abundance. The forests of the western part of the State are good locations for apple orchards; and the grapes and peaches of the lake shore have obtained a general notoriety.

D. C. Richmond, of Sandusky, estimates the acreage in grapes in Erie county at 3,000, and a yield of wine of 250,000 gallons, last season, of which the Kelley's Island Company made 63,000 gallons; that some single acres have produced four tons of Catawba grapes; that the must averaged from 85° to 100°. He claims that this region is equal to any other east of the Mississippi for grape-growing, but thinks many people with high expectations will be disappointed, in consequence of mildew and rot in wet seasons. A want of a good wine grape is expressed, the Catawba being too acid. Experiments with the Norton, Ives, Iona, and others are being made. The fruit crop in this county yields more revenue than the grain crop.

Our Wood reporter has an orchard of 50 acres in young apple trees, which yields him usually about $3,000 worth of apples, delivered in Toledo market, eight miles distant.

Apples are best adapted to the soil and climate of Carroll, and considerable quantities are shipped from the county.

Apples are the principal crop in Wayne.

In Licking the apple is esteemed the most profitable of the fruits, the grape coming next in order.

In Portage it is claimed that $500 per acre is but a medium estimate for grapes, (Concord and Rogers's hybrid.)

In Tuscarawas the curculio, next to the wheat-midge, causes more loss than any other insect tribe. Grape culture is increasing there, but its success, owing to rust or mildew, is deemed problematical.

One hundred bushels of apples per acre is a common average in Ottawa, and prices average about 60 cents per bushel.

Much attention is being given to grape-growing in Lorain. Vineyards have been planted on the lake shore, some few coming into bearing. Upwards of 400 acres are now planted. Price of vineyard land previous to improvement is from $150 to $175 per acre; cost of improvements, about $55 per acre.

Our Henry county correspondent gives the following account of the production and profit of his orchard of 150 apple trees, planted in 1848, and about the same number of peach trees, planted in fence corners around the orchard and intermediate between the apple trees—premising that the past season was not the regular apple year with that orchard:

1867.—ORCHARD.

Dr.		*Cr.*	
To picking 222 bushels, at 4 cents	$8 88	By 132 bushels apples, at 75 cents	$99 00
To making 4 barrels cider	2 00	By 40 bushels apples for family use	30 00
To taking dried fruit to market	3 00	By 50 bushels apples, late-keepers, buried, worth $1	50 00
To 10 per cent. interest on value of 3 acres	15 00	By 6 bushels dried apples	10 56
		By 27 bushels dried peaches	80 64
		By 30 bushels green peaches	9 00
		By fruit canned and used	10 00
			289 20
		By 128 gallons cider vinegar, at 25 cents	32 00
	28 88		321 20

Our Lucas observer had about 400 bushels of choice apples, and sold them for $3 per bushel at the orchard, to be shipped east. The orchard had 30 acres, the trees about 20 years old and remarkably thrifty.

Our Fulton correspondent has an orchard of four acres—trees 30 feet apart, set 20 years; kinds, Rhode Island greening, Spitzenberg, Tulpahocken, Vandeveer, Rambo, Holland pippin, strawberry, and early harvest—that has produced 250 barrels average for eight years Sold in orchard at $12 to $15 per barrel, net.

In Seneca all kinds of fruit do well except plums and peaches, the curculio destroying the plums and the frost the peaches, though a fair peach crop is enjoyed once in five or six years.

In Logan the apple, in its several varieties, is the most successful fruit crop, and is deemed the only one that can be relied upon. The Rhode Island greening, bellflower, and winter pippin are preferred.

It is reported of Miami that apples and peaches, which were formerly sure and abundant crops, are now obtained from abroad, while pears, which were wont to blight, now produce well.

INDIANA.

1. This State shows an increase in the value of lands in a majority of the counties reported, averaging 27 per cent. In some parts of Brown the increase has been 100, and in Warren and White 75 per cent. Carroll and Switzerland report an increase of 50 per cent. up to 1864, and since that date a decrease of 20 and 30 per cent. DeKalb, until 1864, was about the same as in 1860, but now shows an increase of 25 per cent. Steuben, the northeastern county of the State, without railroad advantages, reports an increase of 20 per cent., with a steady upward tendency. Howard, Jasper, Jennings, and Washington, report no increase.

2. Unimproved lands present an increase, but vary greatly in price, according to location and resources. In Boone they are not much sought after, except for timber, but where conveniently located to railroads bring high prices. Lands in Fountain are valuable for stone, timber, and coal, and are generally adapted to cultivation. In Greene a large portion is heavily timbered, and abounds in stone, coal, and iron ore. Dubois and Owen produce excellent grasses and wheat; and Martin, Lake, and Kosciusko, are heavily timbered and good for fruits and grazing. Steuben is heavily timbered with the choicest of white wood, black walnut, white oak, white ash, &c. The soil is well adapted to all kinds of farming and fruits; it is natural grass land and readily sells for $20 and $25 per acre. In Bartholomew, Park, and St. Joseph the unimproved lands are worth as much, on account of their timber, as the improved. Peat is a ttracting considerable attention in St. Joseph, and it is to be thoroughly tested. La Grange and Montgomery report the highest figures per acre, being in the former from $5 to $100, and in the latter $30. In Fayette, Howard, Johnson, Putnam, and Wayne there is no wild land, and but little in Carroll and Vigo. In the latter county it will produce about 25 bushels of wheat per acre.

3. The minerals of Indiana are various, and, although not properly developed, already promise to contribute largely to the future wealth of the State. Want of railroad communication is severely felt in some of the counties, and retards the development of vast fields of coal and iron ore. Gold, copper, lead, and coal-oil have been found, but not enough is yet known of them to judge of their paying qualities. The finest varieties of timber, such as oak, walnut, poplar, and cherry, abound in all parts of the State, and the annual shipments are very large. In Lawrence county building stone, known as the "White River or Bedford stone," is found in large quantities and shipped to St. Louis, Cincinnati, Louisville, &c. The custom-house at Louisville, and United States court-house

in Indianapolis, are built of this stone. The coal of Vigo county is said to be very valuable for smelting iron ore, as it does not need coking. Limestone is also found in abundance, and immense quantities are burned for shipment to the south. Peat is found in several counties and is attracting attention. The soil throughout the entire State is generally of the very best quality, and well adapted to all kinds of grain and fruit.

4. Indiana cannot be said to have any speciality in farming. Wheat, corn, oats, hay, and flax are grown and generally yield good crops. In Wayne county the yield of corn and wheat is much smaller than formerly, and the latter now scarcely pays for cultivation. Many of the bottom lands yield $20 per acre profit when planted in corn. In referring to the failure of the wheat crop in some of the counties, our reporter in DeKalb says:

> Wheat has heretofore been made a specialty here, but for three years past has failed, and as but little attention has been given to stock raising the county is nearly impoverished by the failure.

Rye and buckwheat are cultivated to some extent in Bartholomew, Cass, Greene, and Martin, and produce well. Corn is much depended on for domestic purposes, and appears to be the favorite crop, never failing, and in some localities yielding from 50 to 100 bushels per acre.

5. The Mediterranean varieties of wheat are generally preferred. Among the kinds cultivated are Blue Stem, Lancaster, Tappahannock, White Italian, Delaware, May, Wabash, Baldwin, White Flint, "Lancaster, or Weevil proof," Canada Club, Alabama White and Swamp wheat. In several counties the "Weevil proof" is preferred, and the Delaware, and Tennessee, or May wheat in others. In Benton the Bearded Mediterranean is preferred, because it stands the winter and escapes the rust. In Brown county the Swamp wheat supercedes the Red Mediterranean, and in Howard it is the general favorite, while in Decatur both are preferred to other kinds. Our reporter in Howard sends us the following in regard to "Swamp" wheat, which is supposed to derive its name from the fact that it will stand the winter in low, wet ground, when no other will:

> Many kinds of wheat have been tried in this county, (Howard,) but the "swamp" appears to be the universal favorite among our farmers on account of its early maturity and almost total immunity from the *midge*.

It is also highly spoken of in several other counties.

The Mediterranean is generally sown from the 1st of September to the 30th. The usual time for sowing all varieties of winter wheat ranges from the 1st of September to the last of October, and harvesting from June 15 to July 25. No varieties of spring wheat reported.

In 22 counties reported, more than half the acreage is drilled. In Jennings the proportion is nine-tenths; in Fountain, Warren, and Fayette, three-fourths; in Decatur, Clinton, Vigo, Bartholomew, Kosciusko, and Montgomery, two-thirds. Steuben, Spencer, and Lawrence report "none;" Putnam, "very little;" Posey, "some little;" Scott, "no drills;" and Tippecanoe, "mostly drilled." It appears probable that from four to five-tenths may be drilled. In 27 counties, out of the 53 reported, drilling is the preferred mode of culture, in speaking of which our Cass correspondent says:

> Drilling is the usual mode in the prairie lands, for the reason the crop is more easily and evenly put in, and the further reason that the strong winter winds strip the roots of the growing crops of that which is sown broadcast, the soil being light and sandy, causing it to be killed by the frosts. On the contrary, the drilled crop is rather improved by the wind, the growth being in a small furrow, made by the drill, in which sand and light earth drift, and cover more completely the roots and protects them from the frost.

6. Blue grass, timothy, and clover grow abundantly. Blue grass, however, is the most prominent. It supplies the place of other grasses which die out, and in some counties takes possession of the pastures in a few years. Regular pasturage costs from $4 to $10 per head during the season. In Warren, good-

sized cattle will take on 400 pounds during six months. The pasturing season averages about seven months in length.

7. Nearly all kinds of fruit do well. Apples take the lead and are the surest and most profitable crop in the State. In La Grange county apples of the very best quality are abundant, and in no year since the country was settled have they been an entire failure. Jasper, Gibson, Green, and other counties are also productive of apples. In Fulton they are the principal crop, and pay 20 per cent. more than any other product. In Lawrence they were once a very sure crop and of excellent quality; now they are very knotty in consequence of being stung by some insect. Blackberries are very abundant in this county, and immense quantities are shipped to the cities. On the hills of Martin, peaches, apples, pears, plums, grapes, and cherries are generally abundant, and on hill-sides and low-lands all do well but peaches. Over $300 have been made on an acre of peach trees in Morgan county. Peaches were very abundant in Cass county until 1855, at which time the trees were all killed by the severe winter weather, and since that time farmers have not paid much attention to this fruit. Our Washington reporter, speaking of the fruits of that county, says:

For peaches, *superior*. Much of our hill or knob land brings crops of high flavored fruit, 8 years out of 10. This business is getting to be a specialty, and increasing in extent each year. Under present management, profits range from $50 to $100 per acre, the estimate being based upon actual knowledge of some crops sold.

Grapes and small fruits of all kinds flourish in almost every part of the State, and, with few exceptions, the yield is large. A gentleman near Martinsville, Martin county, has several times produced over $500 worth of wine from less than an acre. Another gentleman, in the northern part of the same county, has been equally successful. The profits of fruit raising in Indiana vary according to the demand; and but few facts regarding the yield and profits have been reported.

ILLINOIS.

1. The average increase in the value of farm lands in the several counties of Illinois, as compared with the estimates under the census of 1860, is variously returned by our correspondents, ranging from as low as 6 per cent. in Lake county, on Lake Michigan, up to 100 per cent. in Ford, De Witt, Moultrie, Richland, Clinton, St. Clair, and Union. In Will, Grundy, Fulton, Christian, Macon, and Pope, the advance is reported 70 to 75 per cent.; Rock Island, Knox, and Stephenson, 60 to 65 per cent.; Winnebago, Henry, Warren, Douglas, Logan, Sangamon, Jersey, Fayette, Effingham, Cumberland, Cook, Wabash, Marion, and Washington, 40 to 50 per cent.; McHenry, Lee, Mercer, McDonald, Stark, Morgan, Crawford, Randolph, Alexander, and Massac, 30 to 35 per cent.; Madison, Macoupin, Pulaski, and Hardin, 25 per cent,; Kane, Bureau, Henderson, Woodford, Iroquois, Edgar, 15 to 20 per cent.; Livingston, Adams, and Franklin, 10 per cent. Edgar county reports an increase of 30 per cent. up to 1864, but since that date a decline to the 15 per cent. above reported. Moultrie reports a similar decline since 1863, though the general advance since 1860 is put at 100 per cent., while Richland reports that its increase of 100 per cent. has been made chiefly since 1863. Making reasonable allowance for extravagant estimates or apparently low valuations, the general increase for the whole State may be set down at from 40 to 45 per cent.

2. Of wild or unimproved lands a number of counties report "little or none," except such as may be connected with cultivated farms and not to be purchased separately. The prices for this description of lands vary greatly according to quality and location, ranging from $2 upwards to the full value of improved lands. In Stephenson county these lands are held at from $10 to $15 per acre, much of them broken and hilly, with small second growth timber adapted to grazing. Winnebago, very little unimproved prairie land in the county; it is held at

$30 per acre; unimproved timber land, with timber cut off, is worth $6 to $15; part of the latter has a rich, productive soil. McHenry and Lake have very little of such lands, disconnected from cultivated farms. Kane, no wild lands except swamps owned by the county, held at $4 to $10 per acre. Cook, $35 per acre, mostly low bottom land, too wet for cultivation, yet capable of producing good pasturage and meadow. Will county, $20 per acre, quantity small. Grundy, $16, deep loam with clay subsoil, capable of producing heavy crops of corn, grass, small grains, fruits, &c. Lee, $4 to $12; a portion will produce 30 bushels of corn, the balance fit for pasture. Bureau, average $15 per acre, mostly good prairie. Putnam, chiefly Illinois river bottom and bluff lands, the former rich and well adapted to the culture of corn and potatoes, the latter suited to fruit culture. Henry, average $18 50, quality about No. 2. Rock Island, $2 to $12 per acre, mostly low bottom lands. Mercer, $8 per acre; three-fourths broken or sharply rolling, bordering the streams, and generally covered with young timber; excellent for wheat and other small grains, and good for corn and grass; one-fourth is overflowed and not cultivable without leveeing, but furnishes subsistence to large herds of cattle. In Henderson nearly all cultivable land is now worked, and the timber land is being fenced for pasture. McDonough, a large amount of the best lands held by speculators, worth $25 per acre; secondary tracts and creek bluffs from $3 to $20 per acre. Fulton, $5 to $10 per acre, mostly "barrens." Warren, $15 per acre, prairie and timber; the soil of the former a deep rich loam, 12 to 18 inches deep; the latter not generally good, the timber constituting the chief value, hilly and uneven. Brown, $7 50 per acre; some No. 1 soil, remainder very thin; timber, coal, and potters' clay, upon some portions. Knox, $10 to $25 per acre, chiefly brush lands, generally underlaid with coal; these lands mostly good for fruits, especially grapes. Stark, $20 per acre, rich soil. Woodford, raw prairie, $14 per acre; timber, when suitable for lumber, $100 to $200 per acre; barrens (clay land from which the timber has been cleared) $10 per acre. Livingston, $15 per acre, suited for all farming purposes. Iroquois, $7 per acre, quality inferior to good, light sand, black sandy loam, black clay loam, and muck; good for grazing and general farming. Ford, $12 per acre, rich prairie. DeWitt, $8 to $25, chiefly belonging to Central Railroad Company, mostly low and flat, but equal to the best uplands when properly drained. Douglass, $15 per acre, mostly rich prairie. Edgar, $12 per acre, first-class land. Moultrie, $12 50, embracing about one-third of the county, held by speculators and the Central Railroad Company; quality excellent, claimed to be capable of producing corn, wheat, and hay for many years without manure. Christian, $10; one-third hard timber, remainder fair prairie. Macon, $8 to $15, generally held by speculators and Central Railroad Company; quality good, capable of high cultivation. Logan, $22 50, chiefly prairie of good quality. Sangamon, $24; mostly along watercourses, and belonging to farms; held for timber growing, and where fenced used as woods pastures. Adams, $5, timber land minus the timber. Macoupin, $10; good wheat and corn land. Jersey, $3 to $50, average about $12 per acre, mostly broken or kept for timber. Fayette, $10 per acre, good land. Effingham, prairie $15, timber $10 per acre; one-third of the county timber; soil, clay loam, adapted to grain, grass, and fruit. Cumberland, prairie land $11, good timber $12, glade or brush $4 to $5 per acre. Crawford, $10 per acre, timber and prairie, adapted to grain, grass, tobacco, &c. Richland, $15 to $20 per acre for wild land free from timber, and $4 to $8 for timbered prairie land; the latter being lower owing to the labor and time required to bring it under cultivation, the timber being thick but of poor quality. Wabash, $20 per acre, good for grass and for corn when drained. Marion, $18, prairie and timber, adapted to culture of grain and fruits, especially grapes. Clinton, $10 to $36; the upland is first-rate for wheat, and the bottoms for corn; the prairie adapted to general farming. Washington, $20 per acre, mostly timber or broken;

quality inferior. Randolph, average $15 per acre; a portion very rich, covered with hickory and oak. Franklin, $5 per acre, principally timber; one-sixth bottom lands, the remainder average tillable land, some of the best quality. Union, $15 per acre. Alexander, $9 per acre, black sandy soil, broken and bottom lands, good for grain and grass. Pulaski, $10 per acre. Massac, $3 per acre, swampy, but the driest portions are fine for grass. Pope, $3 50, mostly broken or hilly, with any amount of sandstone on the surface. Hardin, $5 per acre, good ridge lands, suited to grain and potatoes. Williamson, $9 per acre; quality tolerably good for general farming. In 1860 the improved land numbered 13,096,374 acres against upwards of 22,000,000 acres (including water surfaces) unimproved, but at this date the proportions are greatly changed.

3. Illinois is probably better supplied with timber than any other prairie State, and were it equally distributed no part of the State would be deficient. In some counties there is a large superabundance, as in Pulaski, from which our reporter writes that every acre of their land was originally covered with a dense forest of poplar and oak, giving employment to a large number of hands at the various mills and shingle and lath machines; while in other sections there is not sufficient for general home purposes. The varieties of timber most abundant are the oaks, black and white walnut, ash, elm, maple, locust, hickory, hackberry, linden, cottonwood, mulberry, pecan, sycamore, wild-cherry, sassafras, and persimmon. In the southern and eastern parts of the State, yellow poplar and birch are the peculiar growth, and near the Ohio are clumps of yellow pine and cedar, and the alluvial soils of the rivers produce cottonwood and sycamore timber of amazing size.

The northern portion of the State is rich in minerals, while coal, limestone, and sandstone are found in almost every section. Iron is found in considerable quantity in the southern, and lead and copper in the northern portions of the State. The coal deposits are spread over a large extent of country, being found in the ravines and bluffs of the Mississippi, and in immense beds on the line of the Illinois and other rivers, but as yet are comparatively little worked beyond the demand for neighborhood consumption, owing to lack of capital and facilities for transportation. About two-thirds of the counties responding to our circular report the existence of coal in greater or less quantities. Superior limestone is also reported in various quarters, where it is being extensively converted into lime—35,000 to 40,000 barrels per annum in Rock Island. Kaolin is found in Pope county; immense beds of peat in McHenry; salt springs in Gallatin, Jackson, Vermillion, and other counties, and sulphur and chalybeate springs in some localities.

The agricultural resources of Illinois, however, constitute her chief source of wealth and material prosperity, the State now ranking next to New York the highest in the aggregate value of agricultural products, reaching over $160,000,000 in 1866, and $181,000,000 in 1867. The character of the soil of the State is too well known to require detailed mention here.

4. Wheat, Indian corn, oats, hay, and potatoes, are the leading crops of the State being extensively grown in all sections, but the first two named are the great staples, the crop of Indian corn of 1866 aggregating nearly 156,000,000, bushels, or more than one-sixth of the entire crop of the country; and of wheat about 28,500,000 bushels, and about the same proportion of the total yield. As in all the northern States, a mixed husbandry prevails throughout the State, the full list of products suited to the latitude being grown to a greater or less extent in each county. The money values of the several prominent crops during the past year foot up in round numbers as follows: Indian corn, $74,000,000; wheat, $60,000,000; hay, $25,000,000; oats, $15,000,000; potatoes, $4,400,000; tobacco, $1,260,000; barley, $1,270,000; rye, $760,000; buckwheat, $273,000. The wheat is the chief money crop, however, a large portion of the corn and grass crops being fed out upon the farm to cattle and hogs, and thus converted into more compact

and profitable shape for transportation to market, though some of our correspondents state that the profits of feeding during the past two years has ranged from 25 to 75 per cent. of the selling profits, as while corn has been sold as low as 10 to 15 cents per bushel, last fall it brought 50 to 60 cents. Our Morgan county reporter says :

Our county is mainly engaged in raising beef and pork from corn and grass. Little reliance is placed on other crops, our lands being especially adapted to those named. The late Jacob Strawn, known as the Napoleon of cattle feeders, in his latter days, came here a poor boy about the year 1829, and died worth about $2,000,000, all accumulated in agricultural pursuits and the advance in the value of his lands. John Alexander, who began with nothing, now farms about 30,000 acres, and probably ships more beef into the New York market weekly than any other man in the United States. Other men have done well, many have made fortunes, but the certainty of profit from beef and pork, together with sheep, horses, and mules, to some extent tends to make our farmers negligent of the products of the dairy, the garden, and the orchard, and indeed of all other products, for many of which our soil is doubtless well adapted.

Our Sangamon correspondent writes as follows :

Corn is the principal crop raised; our best farmers usually plant about the 10th of May. The common mode of culture is to plant with a machine, in hills four feet apart each way, dropping from four to six grains at a time. As soon as up enough to show the rows, the ploughs are started, either double-shovels or riding cultivators. Three times ploughing are usually considered sufficient, and a great many fields never get more than two. The average yield is not more than 60 bushels per acre, though some of our best farmers raise from 75 to 100 bushels. The average cost of breaking, harrowing, planting, cultivating, and gathering an acre of corn the past season may be set down at $10; the average price of corn in the crib, 60 cents per bushel.

Warren county :

Corn is the great staple and must continue to be. With the slovenly culture practiced, 25 bushels per acre is about as much as the county will average, while careful culture, with ordinary skill, will make whole farms average 80 bushels per acre; showing that it is much more profitable than careless culture. Fertilizing our land (though very rich) increases the yield in as great a ratio as upon the thinnest land to be found, and will bring it up to 100 bushels of corn per acre with proper cultivation.

Brown county :

As high as 100 bushels of corn have been taken from one acre. The best 80-acre field I remember to have seen was raised by your correspondent in 1861. Mode of culture : wheat stubble ploughed in November 10 inches deep with a three-horse plough; a similar ploughing in April; planted four feet each way, ploughed three times, the last time the end of June; yield, 70 bushels per acre. It was the year of the great frost on the 28th of August, which ruined so much corn in the west. This piece was entirely out of the way, was cut up, shucked and cribbed and the fodder fed to the stock. The corn was sold, August, 1862, at the depot for $1 01½ per bushel. Our help was contraband at $10 per month and board; other expenses light. The profits were $60 per acre. The land was worth $40 per acre. The fodder was valuable, and some of it was sold as high as $5 per acre.

De Witt county :

Corn, when well worked, say 15 acres to the hand, will, in ordinary seasons, produce 80 bushels to the acre, making 1,200 bushels to the hand, or, estimated at average price for the past five years, makes $600 for about three months' labor. Spring wheat, owing to its many enemies, does not pay nearly as well on an average as corn.

Our Grundy reporter estimates the net profit of corn culture in that county at about $9 per acre, the average yield, 35 to 40 bushels per acre; timothy seed, 4 bushels per acre, net profit, $9 per acre. In Franklin, corn is put at 35 bushels per acre; expense per acre $10; net profit $6 50 per acre.

In a number of counties potatoes are largely cultivated, and by many considered the most profitable. In Putnam county the average yield is stated to be 125 bushels per acre, worth about 45 cents per bushel. The average for the State last year was about 60 bushels to the acre, worth on an average $1 20 per per bushel. In the lower counties the culture of cotton and tobacco has been quite profitable for a few years back. Sorghum has received considerable attention and success in some quarters, but for some unexplained reason the average has greatly decreased.

Our Moultrie county correspondent furnishes the following statement in reference to the relative profits of wheat and corn culture:

I shall take ten acres for a datum, and the present year (1867) for spring wheat as to quantity, and 1866 for corn, deeming that year an average of the previous nine years, the crop of 1867 having been a comparative failure, owing to the long-continued drought, and an unfair basis.

The variety of wheat sown was the Chinese; soil, prairie, old ground, nine years successively in corn.

Ploughing, 6 days; dragging and rolling, 4 days, at $2	$20 00
Sowing, $1; seed, 15 bushels at $1 50 per bushel	23 50
Harvesting and stacking at $2 per acre	20 00
Threshing, 6 cents per bushel; sending to market, 4 cents	21 35
	84 85
Credit by 213½ bushels wheat, $1 95 at station	416 42
Net profit, not counting wear of implements, sacks, etc	331 57

The corn was planted on old ground, cropped six years in corn.

Ploughing and dragging, at $1 25 per acre	$12 50
Planting and rolling	8 00
Seed, three grains in a hill	1 00
Working 4 times. 1¼ days each time, team and man	12 00
Shelling and marketing, at 5 cents per bushel	20 75
	54 25
Credit by 415 bushels of corn at 75 cents per bushel	311 25
Net profit on 10 acres of corn	257 00

By feeding the corn to stock a much larger profit may be realized.

The average yield per acre of the several leading crops of the State in 1867 was as follows: Indian corn, 23.8 bushels; wheat, 11.4 bushels; rye, 15 bushels; oats, 30.1 bushels; barley, 22.3 bushels; buckwheat, 15.2 bushels; potatoes, 60.5 bushels; hay, 1.5 tons; tobacco, 573 pounds.

5. The principal varieties of wheat sown in Illinois are the China Tea, Siberian, Rio Grande, Fife, Canada Club, Genesee, Zimmerman, Michigan White, White Chaff, red and white May, red and white Mediterranean, Blue Stem, Tappahannock, Red Sea, with a number of others not extensively cultivated and going under local names. All the varieties named have their advocates in various localities. Of spring wheats the China Tea, Rio Grande, Club, and Fife are the most popular as the most reliable and most productive, and of the winter varieties the white and red May and Mediterranean are considered more uniformly certain, standing the winter better than most other kinds. In several counties a variety known as the Zimmerman wheat is highly esteemed for its hardiness and general freedom from rust and blight. The Tappahannock wheat meets with much favor wherever introduced, and promises to become a very popular early winter wheat. A large proportion of the crop of Illinois is spring wheat, the winter varieties being so frequently injured by frosts as to render the crop uncertain in the northern part of the State. In the southern portions of the State winter varieties are more successful and are sown in larger proportion.

Winter wheat is mostly sown in September, many of our correspondents favoring the earliest seeding, commencing late in August, while others recommend later sowing to escape the Hessian fly, and in some sections the seed is not all in before the middle of October. Spring seeding begins late in February in a few localities, running through March on to the middle of April. In Crawford, Franklin, St. Clair, Washington, Fayette, Randolph, Sangamon, McHenry, Macoupin, Union, Madison, Cumberland, and a number of other

counties, the proportion drilled ranges from one-half to nine-tenths, many others running from one-twentieth up to one-half, while only a few counties report "none drilled." Harvesting commences by the middle of June in the southern counties, running through July and into August for the spring-sown crop. Of the mode of culture a correspondent writes:

The best farmers prepare their ground in the fall, ploughing deep; then, when spring opens sow broadcast, (from one and one-half to two bushels to the acre,) ploughing in with double shovel. After the wheat comes up they roll with a heavy roller. Some have adopted the plan of cross-harrowing after the wheat comes up, and then in a few days use the roller. The result has generally justified the expense.

Another correspondent says:

The amount of cultivation is but little. All is sown on fall ploughing, or on land upon which a crop of corn was raised the year before, the harrow only being used. Some, however, go through the corn rows with the sulky cultivator and cross with the harrow. None sown on spring ploughing.

Our Winnebago reporter writes as follows:

We plough our stubble land in the fall, stir the surface before sowing in the spring with a cultivator, sow broadcast and thoroughly harrow. The roller is coming into general use for wheat and other small grains.

6. White clover, June or blue grass, crab grass, common prairie, and on the low grounds red-top and brown-edge, are the natural grasses, while timothy, red clover, herdsgrass, and Kentucky blue grass form the cultivated pastures. When the prairie is tramped and eaten out by a long course of pasturage the June or blue grass succeeds it, and with white clover drives out timothy and red clover in a few years. Our McDonough correspondent writes:

Prairie grass is the only indigenous grass of value. So soon as this is pastured or tramped it readily yields to blue grass and white clover. Red clover succeeds well here by sowing, and timothy is one of our best crops, yielding on common meadows one and one-half ton per acre, which by mowing is easily increased to two and one-half and even three tons per acre. No crop here is so much improved by manure.

Fulton county claims to have raised (according to the census of 1860) about one-fifth of all the clover seed gathered in the State, or as much as 25 average counties, showing, says our reporter, "what we are doing to keep up our land, though not so much as we should do for profitable farming."

Stock does well upon pastures about seven months of the year on an average for the State, but somewhat longer in good cultivated pastures or in the more southern counties, where cattle will frequently subsist the whole year without feeding. When cattle are pastured upon the range the expense is trifling beyond the cost of herdsmen, and the highest estimate of cost of pasture is $1 75 per month in Jersey county, other counties ranging from that price down to "cost of boy to watch the herd."

7. Most of the fruits suited to the latitude of the several counties of the State are successfully grown, especially in southern and central Illinois, where the culture is made a specialty by many.

Our reporter in Union, one of the extreme southern counties, writes as follows:

A ridge of highlands, known as the "grand chain," passes through this county from east to west, and is admirably adapted to the culture of fruit. During the past ten years fruit trees have been extensively planted and many large peach orchards are now in full bearing. Pears, peaches, and apples do well; also strawberries, raspberries, and gooseberries. Plums and cherries have not been successful. In 1866 there had been planted 300,000 trees and 200 acres of berries, and at the present time there are undoubtedly 500,000 trees and 400 acres in berries. So great is the yield that five car loads (8,000 quarts to the car) of berries were shipped in a single day, and 15 car loads (250 bushels to the car) of peaches daily during the past season. An average yield of strawberries with all kinds of cultivation (including no cultivation at all) has been 50 bushels per acre, with a net return of $4 per bushel. Peaches, though considerably affected with rot, have made as good return per acre. Pears pay better, but the orchards in bearing are yet small. Early apples have done even better. Late apples are now attracting much attention and new varieties are being introduced.

Our reporter in the adjoining county of Pulaski says:

For early apples they have realized $7 per bushel, above expense of shipping and commissions, and for other fruits proportionately high prices. In Washington county most orchards are young, just beginning to bear. One man, from an orchard of 150 acres, the trees four years old from the bud, shipped 5,000 boxes (2,000 bushels) of peaches, at a net profit of $3,000. Another man, from six acres, the trees seven years old, sold 1,300 boxes of peaches, at a net profit of $650.

In McDonough county, apples succeed well, but our correspondent adds:

The worms and freezes in our soil render necessary the renewal of orchards in 20 years. Dwarf pears do well, but standards blight badly. Our only reliable cherry is the old Morello and English Morello dwarfed. Concord, Hartford, Prolific, Clinton, and a few other varieties of grapes do well, and we frequently have good crops of the Isabella, Diana, &c.

From Winnebago, in the extreme north, our correspondent writes as follows:

Our soil is excellent for fruit, but our climate is very unfavorable on account of the great extremes of heat and cold, and frequent and sudden changes. Peaches cannot be raised, pears but seldom, on account of the spring frost. The finer varieties of cherries do not succeed, while the coarser kinds are liable to be killed by frost while in bloom. Many varieties of hardy apples do well, but are not so fair and large as the same kinds imported from Michigan. The small fruits and hardy grapes do finely. One great drawback to fruit-raising is the late spring frosts which often occur while fruit trees are in bloom, especially the earlier varieties. Apples are much troubled with the codling moth, and plums with curculio.

In De Witt, apples appear to be the fruit best adapted to the soil and climate, though small fruits are raised in great abundance. During the past three or four years, apples have paid better than any other crop; many orchards of from three to five acres netting from $400 to $700. Our Grundy reporter says:

That fruit culture there affords a better profit than grain or stock growing, ranging from $100 to $200 per acre. In Jersey county there are several vineyards that have sold to the amount of $1,500 per acre, at an expense of from $700 to $800 per acre; while apples yield, on an average, 150 barrels per acre, worth, net in the orchard, 75 cents per barrel.

Our Effingham correspondent writes as follows:

Our soil is well adapted to apples, peaches, pears, quinces, plums, cherries, grapes, &c., though no attempt has been made to develop our capacity in these respects. Last year our apple crop was probably 30,000 bushels, worth $1 per bushel here. The varieties now cultivated are the Ben Davis, Rome Beauty, Maiden's Blush, Rambo, Raul's Jannetting, Golden Russet, Fall Winesap, &c., &c. Some of the older trees bear 20 to 25 bushels, indicating a capacity of 1,000 bushels to the acre. One peach orchard of 1,200 trees, near Mason, netted $1,200 last year. An orchard of peaches and apples, 10 acres, in Effingham, netted $3,000 at eight years old. As yet, nothing has been done with pears, except to get a fine show of Flemish Beauties. From a young vineyard of 400 vines, Mr. Hegeman netted $400. From a mixed ten-acre orchard of apples, peaches, quinces, plums, &c., Mr. L. W. Thompson, of Effingham, obtains a very comfortable living. About 100 bushels of strawberries can easily be raised to the acre, worth $3 per bushel, net. Early Richmond and May Duke cherries grow in great abundance and large shipments are made annually.

MISSOURI.

1. A number of the western counties of Missouri, including Holt, Jackson, St. Clair, McDonald and Green, Texas, near the southern border, and Howard, Shelby, and Linn, in the north-eastern portion of the State, report no material change in the average value of farm lands since 1860; whilst Montgomery reports an active decline of 20 per cent; Madison, 33 per cent., and Stoddard a still higher rate of decrease. Cooper, Ray, Osage, DeKalb, Calloway, Vernon, Audrain, Scotland, Lewis, Canton, Buchanan, Lincoln, and Scott, report advances ranging from 4 to 15 per cent.; Gentry, 20 per cent.; Christian, Cedar, Newton, and Dallas, 25 to 30 per cent.; Cass, St. Genevieve, Mercer, 33 to 40 per cent.; Pike, Mississippi, Harrison, Livingston, Iron, Chariton, Boone, Dade, Lawrence, Nodaway, 40 to 50 per cent.; Cole, 65; Miller and Bates, 80 per cent.; Moniteau, St. Louis, Phelps, Hickory, Johnson, and Henry, 100 to 150 per cent.; and Jefferson reports an advance of 400 per cent. From the several estimates of our reporters, there appears to be an average of 30 to 35 per cent. for the farm lands of the whole State since the date named. Our

Jefferson reporter accounts for the large increase of price in that county as follows:

Our county is quite broken and hilly, and was considered almost worthless for farming, averaging about $5 per acre; but in 1863–64 the hills began to attract the attention of fruit-growers, since which time prices have been rapidly advancing.

In many counties lands depreciated largely during the war, but have been increasing in value since 1865; from that date they have generally recovered the decline, and made the advances noted above the values of 1860. In this regard our Shelby correspondent says:

Farm lands are now about the same as in 1860; they were 25 per cent. lower in 1863–64, but have advanced at the rate indicated since the latter date. Good farms can be bought here for about $20 per acre.

Another correspondent, in Livingston county, writes as follows:

The price of farm lands in this county has increased about 50 per cent. since 1860. Farms selling in 1860 at from $10 to $40, according to locality, improvement, &c., are now selling at from $15 to $60. For some time during the war real estate diminished in value very much below the prices of 1860, but towards the close of the war it increased rapidly, and has advanced steadily ever since until it has reached the present rates, at which it seems to be on the stand.

2. The wild and unimproved lands of Missouri range in price from $1 to $70 per acre, embracing in character and soil as great a variety as in price. In Carter county this description of land is assessed at $1 30 per acre. In Stoddard it is worth $2 50 per acre on an average; of excellent quality; one-half called "swamp," but most of it usually dry and very fertile. Mississippi, $1 50 to $5 per acre, quality good. Scott, $3 per acre; northern part of the county hilly, and produces wheat, Indian corn, rye, barley, tobacco, fruits, &c.; the eastern and western parts, rich bottom land, (which sometimes overflows;) the central and southern parts sandy and differs in productiveness. Cape Girardeau, $1 and upwards; four-fifths of the area of the county susceptible of cultivation; one-fifth suitable for pastures; some portions suited to the vine and other fruit culture. Madison, $3; rolling, heavily timbered with oak; soil thin. Iron, $1 25 to $10; various qualities. St. Genevieve, average $1; varies in quality from good, gently undulating, to thin and rocky lands. Jefferson, $20 to $25; nearly all the hills or ridges have been tested in fruit-raising, and proved successful. St. Louis, unimproved farm lands average about $70 per acre; hilly land about $30; bluffs along the rivers $10; the hills tolerably good farming lands, but good for fruit; the bluff lands rocky and of little value except for wood, though, as far as tried, grapes do well. Lincoln, $7 50; some of the best land unimproved for want of population; 422,945 acres in the county; population, 13,000. Pike, $10, and Montgomery, $8; adapted to wheat, Indian corn, tobacco, &c. Audrain, $6, good prairie lands; Lewis, $6 50 to $15 for prairie, and $15 to $25 for timber; three-fifths of the county timbered, the other two-fifths rolling prairie; Clark, $5 to $10; Scotland, $6 50, good upland prairie and rich bottoms; Linn, $5, prairie, high and dry, soil generally good, slightly sandy; will produce all the crops of the latitude—corn about 40 bushels and wheat 20 bushels to the acre; Livingston, average, $13, prairie and timber; black, loamy soil; rolling prairie and river and creek bottoms. Mercer, $4 to $7, largely held by non-resident speculators; about two-thirds of the county unimproved, about equally divided between timber and prairie; high and rolling, nine-tenths susceptible of remunerative cultivation. Harrison, $1 25 to $5; black loam, quality good; Gentry, prairie $3, timber $12; the country is rolling prairie, with an abundance of timber; soil rich, dark loam, 20 inches deep, with clay subsoil. Nodaway, $4, capable of producing the crops of the latitude, particularly corn and grass; medium for wheat. Holt, $5, for lands lying near settlements; much not worth over $3 or $4; large tracts are held by speculators at $7 to $10 per acre. De Kalb, $10, upland prairie; La Fayette, $20 for prairie, claimed to be of finest quality, soil four feet deep; inferior quality, $10 per acre, will yield good crops

of wheat, corn, oats, &c. Buchanan and Jackson, $20; Ray, $8; will produce wheat, corn, tobacco, &c. Johnson, $12, character good for farming purposes. Cass, $10 to $30 for timber and $4 to $15 for prairie; all good, tillable land, with from 12 to 30 inches virgin soil. Henry, prairie $6 to $10, timber $20 to $25; soil, alluvial limestone, black and rich. Bates, $6, limestone, with clay subsoil; prairie rolling, and on the ridges there is a good supply of lime and sandstone for building purposes. Vernon, about 350,000 acres of raw prairie in the market, at from $2 to $5 per acre; sandy loam and coarse black limestone soils, adapted to all the small grains and grasses. St. Clair, $4, and Cedar, $3; character diversified, from lands fitted only for pasturage to the richest of river bottom, which will produce 50 to 75 bushels of corn per acre. Dade, $2 to $5 for such as may be cultivated; considerable portions rendered unfit for cultivation by reason of mixture of rocks, sandstone, limestone, &c. Lawrence, $5; timber and prairie; three-fourths of the prairie susceptible of cultivation, all good grass lands; half the timber can be cultivated. Newton, bottom lands and best prairie, $10; inferior, $5 per acre. McDonald, $2 to $6; the county is broken and hilly; none but prairie or valley lands tillable. Green, lands fit for cultivation or in timber, $7; about 300,000 acres wild land in the county, 75,000 of which is owned by the Southwestern Pacific Railroad Company; prairie and timber, four-fifths cultivable. Christian, $3, and Texas, $1 to $5; partially timbered; soil gravelly, adapted to the culture of fruits, tobacco, and the cereals. Hickory, $4, lands productive. Dallas, $2 to $10; a portion susceptible of cultivation, the remainder valuable only for timber and pasturage. Phelps, $1 to $10; mostly broken, with some little prairie, but chiefly timbered; the valleys are very rich, and good for corn, the uplands for small grains and fruit. Miller, $1 25 to $5; variety of soils, from dark limestone loam to light or chocolate-colored, and clay subsoil. Osage, $6; rolling, with a top loam from 6 to 10 inches in depth; Cole, $1 to $10; much of it excellent wheat, grass, and orchard land; a portion of the cheap lands will be useful only for sheep pastures, having a flinty, gravelly surface, covered with oak, hickory, and some grass. Moniteau, $8 to $12; capable of producing 40 to 50 bushels to the acre. Cooper, $10; suited to fruit culture. Boone, $10; fit for general farming; Calloway, $8; will grow tobacco, wheat, and grass. Howard, $5 to $10; soil thin but productive. Chariton, $7 50 for prairie, $20 for timber; soil equal to any in the country.

There is still a great deal of government land in Missouri subject to entry under the homestead laws or purchasable at the established prices for public lands. In 1860, the total area not included in farms exceeded 21,000,000 of acres, against about 20,000,000 taken up in farms, only about 6,000,000 of which was actually under cultivation.

3. Missouri is rich in soil, minerals, and timber, and from its favorable location and great natural resources must at an early day take high rank among the great States of the Union. The Missouri river divides the State into two parts, having different physical characteristics. South of the river, as far west as the Osage, the surface is rolling, gradually rising into a hilly country. Beyond the Osage, at some distance, commences a vast expanse of prairie, stretching westward. The chief geological formations in these regions are solid strata of carboniferous and silurian limestone and sandstone, reposing on or around the unstratified primary rocks. In the hilly and broken regions, including a large portion of the State south of the Missouri, the soil is formed of disintegrated sandstone, and sienite and magnesian limestone. The soils composed of the latter materials are fertile, but in some parts of the mineral regions their productiveness is impaired by the admixture of iron oxides. That part of the State lying north of the Missouri is either rolling or quite flat, and in no place mountainous. The soils are equal to the best intervale lands, and cultivation is probably in a more advanced state than to the south of the river. Its geologi-

cal substratum is chiefly carboniferous limestone, and the district is distinguished for its vast measures of bituminous coal. In the southeastern section of the State, from Cape Girardeau to the northern part of Arkansas, there are large tracts of marshy and inundated lands.

The principal minerals of the State are iron, lead, coal, copper, tin, lime and sandstone, freestone, &c., &c. Iron is reported in greater or less abundance in Scott, Cape Girardeau, Iron, St. Genevieve, Mercer, Cedar, Green, Texas, La Fayette, Newton, Phelps, Osage, Cole, and other counties ; coal in Lincoln, Montgomery, Audrain, Shelby, Lewis, Scotland, Linn, Livingston, Mercer, Harrison, Gentry, La Fayette, Nodaway, Cass, Henry, Bates, St. Clair, Vernon, Dade, Cole, Moniteau, Boone, Calloway, Howard, Chariton, &c. ; lead in Madison, Iron, St. Genevieve, Jefferson, Mercer, Vernon, Cedar, Newton, La Fayette, Green, Texas, Dallas, Osage, Cole, &c.; copper in Vernon, Cedar, Green, Texas, and Cole ; tin in Iron ; slight traces of gold in Mercer, but not in paying quantities ; silver in Cedar ; nickel and cobalt in Madison; limestone and sandstone in Scott, Lewis, Livingston, De Kalb, Buchanan, Phelps, Cole, &c.; salt in Fayette and adjoining counties ; chalk and potters' clay in Scott and La Fayette ; fire and potters' clay in Audrain and Cole ; superior white sand in St. Genevieve; antimony in Cedar; and glass sand in Cole. Our Lincoln reporter says that a bed of coal, 10 miles long, one to three miles in width, and of unknown thickness, underlies that county ; shafts having been been sunk in the bed to the depth of 18 feet without getting through. In Calloway there is a bed of cannel coal, 25 to 75 feet in thickness, extending for miles it is claimed, and lying within four miles of the Missouri river. A vein of coal in Cole county, on the Pacific railroad, has been bored 100 feet without exhausting the coal measure. In particular localities these several minerals have been largely worked, but generally the mineral resources of the State have been but slightly developed, want of capital being the chief drawback.

Walnut, hickory, elm, ash, oak, hackberry, linn, dogwood, maple, cotton, pecan, sassafras, and other varieties of timber abound in many sections of the State, and in few, if any, counties is there a lack of timber for home uses. In some counties lumbering is extensively engaged in. Our Texas reporter says they have thousands of acres of pine timber, with four steam and 10 water-power mills now sawing lumber. In Mississippi county the timber is said to be very fine: "oaks, five feet in diameter; poplars, eight feet; cypress, 14 feet, (exceptions, but plenty four to eight feet in diameter;) but few mills, yet fifty mills could make fortunes here, as there is plenty of timber and good shipping facilities." Oak wood brings from four to five dollars per cord in Jefferson City, Cole county. The Pacific railroad is here supplied with fuel for the distance west of this county, where the line runs more than 100 miles through a prairie country; much is also sold to steamboats along the Missouri river. Railroad ties for the Pacific railroad are also furnished from this point.

4. Corn, wheat, oats, potatoes, tobacco, and hay are the leading crops, but neither can be classed a specialty in any county, though Indian corn is by far the heaviest product of the State, reaching nearly 47,000,000 bushels in 1866, and over 50,000,000 bushels in 1867. The wheat crop of 1867 reached nearly 5,000,000 bushels; oats, 4,300,000 bushels; potatoes, 1,100,000 bushels; tobacco, 11,600,000 pounds; hay, 680,000 tons. The average gross receipts from the several crops per acre were about as follows: corn, $18; wheat, $25; oats, $15; potatoes, $71; hay, $19; tobacco, $92. The corn and hay crops, particularly back from railroad facilities, are largely consumed upon the farms where grown by cattle, horses, mules, and hogs, stock raising having been largely engaged in within the past few years as the most profitable branch of farming operations for the interior, distant from markets and railroads. Our Chariton reporter writes as follows:

Previous to the war tobacco and hemp were specialties in this county; but since the change in our system of labor our farmers are rapidly adapting themselves to the change, and are

turning their attention to stock raising, for which our county is eminently adapted. Corn, wheat, rye, oats, potatoes, grass, and orchards are rapidly taking the place of the former crops, and our prairies being filled with cattle and mules, which will be more profitable.

Our Cole county correspondent says:

The old settlers grow mostly corn, which must be fed on the farm if made profitable, for only such as are within five miles of a shipping point can net 50 cents per bushel when the price in St. Louis is $1 per bushel. Eastern people and the Germans pursue a more varied husbandry, raising small grain for market, which finds ready sale at remunerative prices. The large merchant mills along the line of the Pacific railroad are eagerly buying up all the wheat and rye to supply their milling capacities. Peaches, apples, and small fruits are becoming articles of freight west into Kansas, where all that can be shipped find a ready market. Much attention is also being given to grapes, which will in a few years form a considerable item of our produce and trade westward. Hemp is a profitable crop in the rich bottoms, but labor for its cultivation is scarce.

Shelby county:

Our principal crop is corn, timothy, and Hungarian grass. We raise and feed stock to get our money back. Our lands will yield 35 bushels of corn and from one to one and half tons of hay per acre, the corn selling at 30 to 60 cents per bushel, the hay $6 to $8 per ton.

Scotland county:

Our farmers are giving the most attention to the hay crop, raising only sufficient grain for their stock. Taking the prices of the past few years as a standard, the profits of stock-raising far exceed those of any other branch of farming.

Cooper county:

Wheat is the great staple of this county. The soil being of a porous nature prevents the wheat from freezing out in winter. The average is about 20 bushels per acre. It costs about 75 cents to raise a bushel of wheat, worth $2 50 per bushel; profit per acre $30 to $40. Good wheat land is worth $40 to $50 per acre. So you see wheat is the most profitable crop.

De Kalb county:

Wheat is the surest and most profitable crop. Average of wheat about 25 bushels per acre; corn, 40 bushels; oats, 35 bushels.

Phelps county:

Until within a few years the principal crops were corn and its concentration, pork; but lately there has been more attention paid to the culture of wheat, and it bids fair to be of much importance, as we are having mills to convert it into flour and railroads to export it. Corn will yield 25 to 50 bushels per acre in an ordinary season, worth 50 cents to $1 per bushel. Wheat in one instance the past season yielded 27 bushels per acre, but the average is not much above one-half that amount, worth the present season $2 to $2 30 per bushel.

La Fayette county:

Hemp is the special product, averaging about 600 tons annually. It is baled in the rough and sold at river points to hacklers and shippers at from $100 to $200 per ton. Flax does well, but is not raised extensively. Corn is next in importance, returning with very little labor from 40 to 80 bushels per acre. The hoe is never used. With eastern cultivation 100 bushels and upwards has been the yield. It is always a sure crop, and sells at from 30 to 60 cents per bushel. Wheat has been heretofore considered a doubtful crop, owing to the light quality of the soil allowing it to freeze out; this is obviated by sowing on rough ground or by drilling. But on newly broken ground the first three crops are certain; the second and third generally the best. This season, on both old and new land, the crop is very abundant, and has been good for the last three years.

In Lawrence profits are estimated as follows: Corn, $8 50 per acre; wheat, $10; oats, $12; Moniteau wheat, $15 to $20 per acre. The average yield in St. Louis county is given as follows: 15 bushels of wheat, 50 bushels of corn, 60 bushels of potatoes, 1 ton of hay.

Cotton is cultivated to some extent in some of the southern counties, but is not a certain crop, nor upon the whole as profitable as other branches of farming. Hop culture is receiving some attention in Gentry and a few other counties, the soil and climate being thought favorable.

5. Of the varieties of wheat sown in the State, white and red Mediterranean, red and white May, Walker, blue-stem, Golden chaff, Tappahannock, white rock, goose, Canada club, and tea are the most prominent in the several counties; the Mediterranean, early May, blue-stem, and Walker being generally

preferred for fall sowing, and the Canada club, goose, and tea for spring grain. The May and Walker are preferred for their early ripening qualities and freedom from rust, while the Mediterranean is thought to stand the winter better and realize a safer crop. Our Cole reporter says:

The red chaff is generally cultivated, sometimes discarded for a season or two, but sure to be reinstated, because it is the surest crop, and its yield as good as that of other varieties. White wheat is the favorite on the uplands. Zimmerman wheat is grown on the rich lands where other varieties would lodge and fall down. It has short and hard straw, and brings the best price in market, yielding a very white flour and having but a thin shell. The Mediterranean is disliked on account of its beards and poor quality, but as to quantity it is good.

In some localities the blue-stem is preferred as best adapted to prairie soil. The Tappahannock is popular so far as yet introduced, being earlier and yielding better flour than most other varieties. In Madison county the white rock wheat is generally preferred, because of its greater yield, and excellent flour.

But a small proportion of the crop is spring wheat, though in a few of the northern counties it is given the preference, winter varieties being liable to freezing out in cold winters.

Fall wheat is generally put in the ground during the months of September and October, and the spring varieties in March and April; harvesting commences about the middle of June in the lower part of the State, extending to the middle of July, some of the spring sown grain not ripening until August. In a majority of counties there is very little drilling, in many none at all, and no county reports more than one-half. In most localities where tried the drilling system is considered superior to the old mode, and is gradually being adopted. A correspondent says:

Wheat is largely cultivated, but generally badly managed; some, however, have used the drill to good purpose, and produced from 20 to 25 bushels to the acre.

Missouri wheat culture is no exception to the general system of the west—the largest possible crops upon the least amount of labor—almost everything left to nature beyond the dropping of the seed. A correspondent writes:

The careful and scientific culture of wheat is not practiced in this county; no drills and but few rollers. Wheat generally sown among the growing corn and "scratched in" with bull-tongue plough. The only wonder is that we harvest any crop from such culture; yet from 10 to 25 bushels are generally realized.

Another reporter says:

The mode of culture is rather primitive in most cases, the seed being sown broadcast and covered with a shovel or triangular plough; a few plough the ground and harrow in the grain.

Some plough stubble ground twice, sow broadcast, and harrow twice. Fallow ground is usually ploughed but once. Our Madison reporter says:

The soil is generally broken about four inches in August or September.

In Iron county the general culture is breaking the soil, sowing, and harrowing or brushing in; in dry seasons sown among the corn and ploughed in. The average yield of wheat per acre in Missouri in 1866 was 16½ bushels; and in 1867 about 12½ bushels.

6. The wild prairie grasses, blue-joint, June grass, rye grass, white clover, sage, and swamp grasses, furnish the natural pastures of Missouri, the native prairie grass being generally superseded by blue grass, which appears in all sections of the State where the prairies are pastured freely. Timothy, orchard grass, red-top, and red clover are the principal cultivated grasses, but the prairies are the chief reliance for the subsistence of stock during the pasturing season, which is reported as ranging from 6 to 11 months in length in the several counties, the average in the State being about eight months, during which stock can do well upon pasture alone, though a number of counties name nine months, and Pike runs up to eleven months. Our Chariton reporter writes upon this subject as follows:

Bluegrass mixed with white clover in our pastures and commons, and on our prairies a luxuriant growth of prairie grass mixed with blue grass around farms. In some seasons

stock will keep fat on the pastures until December. Pasturage on our prairies are free. The cost of herding large herds is about $20 per month per head; in pastures about $1 per head per month for cattle, horses, and mules, and about 15 cents per head for sheep. For wintering stock, (about five months) about $12 per head for cattle, $20 per head for horses and mules, and $1 per head for sheep.

Our Green reporter, in the southwest, says that stock can feed exclusively on pastures nine months in that section, and he has seen stock pastured all winter and come out in the spring in good condition, the mode being to take the stock off blue grass in August and turn on again in December. In many cases stock subsist through the winter in the woods, and in the marshes and wet lands, and the hogs get fat upon the mast in winter without corn. The cost of pasturing cattle is but trifling in most localities, the range being free and the only expense that of salt and herdsmen, and frequently the services of the latter are dispensed with. Our reporters return various figures under this head, from "no expense" up to $1 per head per month.

7. With but two or three exceptions our correspondents speak favorably of the capabilities of their respective counties for fruit culture—apples, peaches, pears, plums, grapes, and the various small fruits, being generally successful, though in the northern part of the State peaches are uncertain, in some localities averaging not more than one crop in three or four years. A few extracts from reports of correspondents in different sections of the State will serve to illustrate the general character of counties adjacent:

St. Louis:

This county is well adapted to fruit culture. Peaches are fine, and crop enormous, but are winter-killed at least once in three years, and partially so three times in five. Spring frosts hardly ever affect them. The Concord grape is entirely healthy here, never fails, and will yield under good treatment 10,000 to 12,000 pounds per acre; average about 8,000 pounds; never selling less than 15 cents per pound.

Shelby county:

Nearly every farm has an orchard, and the trees do well. Apple, pear, and plum trees bear nearly every year. Peach trees grow thrifty, but do not bear more than one year out of two; but when they do bear they yield well, and the fruit is of superior quality. Many of our older orchards yield 15 to 20 bushels to the tree, worth 75 cents per bushel.

Howard county:

This being one of the first counties settled has more fruit than any county except St. Louis. Winter apples are chiefly cultivated, and three-fourths of the trees are Rawle's Jannetting, though most varieties of summer and winter apples do well. I have in my grounds, now nine years old; of summer apples: Strawberry, Harvest, Astrachan, Early Joe, Early June, Summer Pearmain; and of winter and fall kinds: Rambo, Swaar, Spitzenburg, Rhode Island Greening, Northern Spy, Newtown Pippin, Fall Pippin, Golden Pippin, Lady Apple, &c., which are bearing freely and promise well. Peaches are very uncertain, except on the bluffs near the Missouri river. Standard and dwarf pears do well if properly trained and cared for. Nectarines and apricots uncertain, though I have had some fine crops. About 1,600 barrels of winter apples were shipped from our village (Glasgow) last fall by river, at 50 cents per bushel, though on the north Missouri railroad, passing through the next tier of counties, the same varieties brought $1 per bushel.

Linn county:

Our capabilities for fruit are very fine. We produce apples, pears, plums, peaches, (about half the seasons,) grapes, quinces, and all the small fruits. Apples, pears, and plums have not failed in 10 years. Apple trees five years from the nursery last fall yielded $10 each in fruit. Many trees have been set during the war. Grapes are doing well—no mildew or rot for three years past, nor previous to that, except on Isabella. Varieties grown here: Concord, Clinton, Hartford Prolific, Delaware, Rogers's Hybrid, No. 15, Isabella, Catawba, &c.

Chariton county:

Apples are very profitable, and peaches do well when not killed by frost, and are very fine. Grapes succeed well. The past season peaches sold at from $1 to $4 per bushel; apples, 75 cents to $1 per bushel; grapes, 20 cents per pound. One farmer in this vicinity sold $2,500 worth from his orchard, the fruit being gathered by the purchasers. Another from an orchard of about 1¼ acre, realized about $600.

Cass county:

Splendid fruit country; apples most plentiful. Last season (1866) was an average crop. E. P. West, from 20 fifteen-year-old trees, gathered 300 bushels. Several orchards of from 120 to 150 trees, of about the same age, produced upwards of $1,000 each at home. The Union Pacific railroad will give us an unlimited market. Peaches bear three years in five.

In Livingston, one gentleman gathered from 100 trees 1,000 bushels of apples, worth 75 cents to $1 per bushel; peaches do not succeed so well; pears grow large and delicious; many persons are putting out vineyards, but the business is yet new. In De Kalb, one small orchard of 27 trees, set nine years, yielded 117 bushels of apples, worth 75 cents per bushel; peaches yield about once in three or four years; pears, cherries, &c., do well. Our Pike reporter says that 50,000 bushels of apples are annually shipped from that county. In Lincoln, an orchard of 1,200 trees, 14 years old, yielded $1,500 worth of apples last year, at $3 per barrel. Our Miller county reporter says:

I have never known any place to exceed this for fruit. Apples and pears receive most attention, but pears, grapes, and all the small fruits do well. I have one apple tree (Wine-Sap) only six years old from the seed, which last season yielded one bushel of good, well-grown fruit; the tree is three inches in diameter. A dwarf pear tree, only four years from the bud, ripened 70 pears of the Seckel variety. Beat that anywhere else, and let us hear of it.

In Cooper county, apples rarely fail, and our correspondent says that 10 acres set out in good winter varieties will be a fortune to a young man; he can set 40 trees to the acre, which will bear in about five years, when he can get $5 per tree for his fruit standing, $200 per acre, $2,000 for his orchard. Our Cole reporter says:

All our uplands, ridges, and hills are specially adapted to the growing of peaches, apples, and grapes. We have already varieties of apples which are a sure and profitable crop. Early peaches, except chance seedlings, are still on trial; the Early Crawford has failed for two years past on account of ice in March, or perhaps from neglect. Late peaches do well. Cherries, pears, plums, &c., grow well. One pear orchard of several thousand trees is a failure, either from an unlucky choice of varieties or from want of proper cultivation. Grape vines do exceedingly well in soil which was at first thought sterile. Strawberries grow luxuriantly.

In the western and southwestern portions of the State fruit culture promises to become a profitable branch of farming operations, a number of counties reporting the setting out of orchards of apples and peaches on an extended scale. Our La Fayette reporter writes as follows:

I think we can beat the world in fruit culture. We export north of the river to Kansas, Nebraska, Iowa, and to all the Territories. Last year (1866) the crop was short but still enormous. From all the data at hand, I should estimate the crop of 1867 at not less than $500,000, besides home consumption.

The culture of the grape is encouragingly spoken of from various quarters. Our Dade reporter says:

As to fruit our soil is wonderfully adapted to the growth of all kinds of fruit, especially the grape, apple, &c. The grape grows here spontaneously in astonishing quantities, and of quality almost equal to the imported varieties. Your correspondent could any day during the grape season fill his wagon bed with grapes that grow spontaneously on the brush-land of his premises, and might repeat it for many days.

Jefferson county:

Fruit is our specialty, including grapes, apples, peaches, pears, and all the small fruits. The grape vine grows wild all through the woods, the fruit hanging from our largest forest trees. The vines grow from 10 to 20 feet the first year, and bear almost a full crop the second year. A peach bud will grow an inch in diameter and eight feet high the first year on a two-year old root. Our soil, climate, and elevation combine to make Jefferson the great fruit and wine county of Missouri. Our grapes and strawberries are 10 or 12 days in advance of any in the market. The grape and apple crops never fail; peaches have failed but once in 33 years, viz., in 1865. Peaches yielding $500 per acre, apples $300, pears $750, and grapes $900 to $1,000, are considered average crops. There are 350,000 fruit trees and 250,000 grape vines now planted in this county, with room for ten times the number.

Madison also claims to be one of the best fruit counties in the State. Apples and peaches seldom fail; the pear and cherry also do well, and all the small fruits produce abundantly. The grape does well so far as tried, and our reporter thinks they have the best grape soil and climate in that part of the State of any in the west. From the very encouraging reports of our correspondents fruit culture is becoming an important interest in Missouri, promising complete success in quality of productions and remunerative profits.

NEVADA.

1. Our only reports from Nevada come from the counties of Washoe and Esmeralda. The agricultural portions of the former were sparsely settled prior to 1860, and but little attention had been paid to raising cereals or even vegetables, the chief production being hay from the wild grasses bordering the ponds or streams of water; the opinion generally prevailed that the soil beyond these margins named was worthless, but from small experiments made, confidence in the productiveness of the soil in the higher portions of the valley began to increase, and at the present time it is generally conceded that all of the cereals and more hardy vegetables can be raised with profit. Many tracts of land have been taken up, therefore, and rendered productive and valuable, that have been considered worthless. The grass lands of 1860 are probably worth no more now than then, excluding improvements. Of Esmeralda, also, very little was known prior to 1860, at which time the mines were discovered, bringing in large numbers, and as a consequence most of the agricultural lands were taken up, and are now under a good state of cultivation, showing an increase in value of not less than 100 per cent.

2. The average price of wild or unimproved lands in Washoe is $2 50 per acre, being government as well as Railroad Company price, there being none held outside. The character of such lands suited to agricultural purposes is upland valley, covered with sage brush; soil sandy, in many places a loam predominating, in others a kind of clay. In Esmeralda the soil on the margin of the rivers, and in the valleys where there is water, is rich and deep; four-fifths of the unimproved land of the county are covered with sage brush, rocks, and a few scrub-trees, and is consequently worthless; the wood is pinyon pine, with a small portion of timber.

3. Washoe county embraces no marked or peculiar resources excepting in minerals, which have not been thoroughly tested, not to an extent sufficient to demonstrate their value. Peavine mountain, lying in the western portion of the county, evidently contains large bodies of ore, copper probably predominating, fused with gold and silver, but from the pecuniary inability of the owners of leads, together with other hindering influences, they have not been developed.

Our Esmeralda reporter writes as follows:

> Our minerals are principally silver and gold in most of the districts. The ledges are large and the rocks rich, they being the only productive minerals thus far; but we have copper, iron, lead cinnabar, gypsum, and some large salt beds, some of which are 20 acres in extent and the salt two to four feet thick. For the great want of capital in this new county the mines are but partially developed, and it is believed that no place offers greater inducements to capitalists than this county.

4. The hay crop is the specialty in Washoe; the grass of the natural varieties mainly, though considerable attention is now being paid to timothy, and some to the clovers. But little dressing has been put upon these lands as yet, but they would doubtless be improved thereby. In Esmeralda, wheat yields about 30 bushels to the acre; barley about 35 bushels; oats 40; corn 30, and potatoes 150 bushels—the culture and profit of which are satisfactory.

5. Australian and Sonora wheat are mostly cultivated in Washoe, the former being generally preferred as more hardy, producing a large white berry and

making excellent flour. Some prefer the Sonora because it yields well and matures quicker. The best time for sowing is early in the season, in February or early March, if the weather will permit; some have sown in January, with good results. Harvesting, about the 20th of July. Mode of culture: sowing broadcast and harrowing, accompanied by irrigation during growth, but if sown early little water is required; none drilled, though our correspondent thinks the drill would be an advantage, if introduced. In Esmeralda, the Australian, Club, red Mediterranean and Tappahannock wheat are cultivated; about one-tenth of the crop is drilled.

6. Blue-joint, red-top, clover, peavine, wire-grass, wild rye, &c., are the natural grasses, upon which farm animals frequently graze the entire year, and perhaps 11 months on an average. Our Washoe reporter estimates the cost per head for keeping full-grown stock, $25 to $30 per year, whilst in Esmeralda it is given at $15 per head.

7. Fruit has been but little tried as yet, but apples, peaches, &c., of the hardier varieties have done well so far as experiments have been made. The question has not been so fully tested, however, as to warrant an opinion as to capabilities.

CALIFORNIA.

1. Our returns from California are quite meagre, and not sufficiently complete to form a basis of judgment for the entire State; yet we give such as have come to hand, as being of interest so far as they extend. Yuba county reports an advance of 75 per cent. in the value of the higher farm lands since 1860. Monterey puts the increase at 30 per cent., and Del Norte 12 per cent.; whilst Amador and Tuolumne report a decline of 50 per cent. since the date named. Our San Francisco correspondent says that farming lands throughout the State have largely increased in value, and estimates that all improved farming property has fully doubled in value since 1860. Our Yuba reporter writes as follows:

In order to make my answers plain to you I must state that in California we have two chains of mountains running north and south, the Coast range and the Sierra Nevada; the former stretching along the coast to the west, and the latter along the State line to the east. Between these mountains there is a valley called the valley of the Sacramento, reaching from Mount Shasta on the north to the southern limit of the bay of San Francisco, and about 400 miles in length. This depression or valley is from 20 to 60 miles in width. Along the bays and the lower extremity of the Sacramento river there are thousands of acres of swamp and overflowed lands. Higher up on the rivers and in the valley there is a great deal of lower bottom lands, very rich and productive, and subject to nearly annual overflows. Much of this is yearly being destroyed by mining, by the deposit of from two to ten feet of sand, gravel, and debris brought down the rivers in times of overflow from the working of the mines in the mountains. This deposit has already destroyed over 8,000 acres of the richest lands in my county that ever lay under the sun: lands worth from $100 to $150 per acre are now not worth $3 per acre. Indeed the garden of the State has been and is being destroyed; fields, orchards, vineyards, fences and improvements all buried up and obliterated, and only remaining a white, drifty, sandy waste. So the mines are becoming a curse to the State. Now, besides these overflowed swamp and bottom lands there is in the valley what is called the higher plain lands, which constitute about two-thirds of the whole valley. This land is of a heavy, dry clay soil, and was at first considered worthless. Along the mountain sides there is a similar soil; and this, with the little valleys in the mountains, is now being extensively cultivated. These high lands, as I shall call them, are adapted to wheat, barley, oats, rye, orchards and vineyards, but are too dry in summer for corn, potatoes, &c.

Various reasons are given for the decrease in value of farm lands in Tuolumne and Amador. In the former it is attributed in part to the failure of either State or federal laws to protect improved lands from the miners, or those who are ever on the watch to locate claims upon lands improved by the money and toil of the honest settler.

2. The average value of wild or unimproved land in Yuba county is $4 per acre; this land is productive, and of the character indicated in the above extract; it will produce, according to our reporter, if fallowed, 60 bushels of wheat to the acre, and 40 to 45 bushels if not fallowed, and other cereals in proportion. In

Monterey the price ranges from 50 cents to $2 50 per acre. In Del Norte, $1 25 per acre; chiefly mountainous, and all heavily timbered, mostly with red wood. In Amador our reporter says the wild lands are worthless. In Tuolumne these lands belong to the United States, and may be taken up by settlers; the valleys have a rich deep alluvial soil, capable of raising almost any crop with irrigation. The hills are volcanic, calcareous, granitic, and slaty, and furnish the best of sites for vineyards, and yield good crops of grain if sown early in the season. Our San Francisco correspondent, speaking for the State, says:

We have so sparse a population, however, that there are vast quantities of good arable land which can be purchased of government at from $1 25 to $2 50 per acre, while some of the large grant owners are willing to sell good lands, but not very eligibly situated for market, at the same prices. The Central and Western Pacific Railroad Companies also sell land within a few miles of the line of their roads at from $2 50 to $10 per acre. Almost all of the valley lands of the State may be termed wheat lands, the great majority, with proper ploughing, producing from 15 to 40 bushels per acre. Almost any product of the north temperate zone can be raised on the ordinary lands in California. Besides the parties named the State has large quantities of swamp or overflowed lands, (which can be reclaimed at moderate expense.) and school lands in different sections which can be purchased at from $1 to $2 50 per acre.

3. The soil of the valley lands is universally productive, while the mountain ranges furnish an abundance of timber. A large lumbering business is done in Tuolumne, a ready market being found in the valleys of that county, Stanislaus and St. Joaquin, at from $25 to $50 per thousand feet. In Amador the timber is mostly cut, except in the higher eastern portion of the county bordering on the Sierra Nevadas, where remains some of the finest timber in the world, while in Del Norte and other counties the redwood timber is almost inexhaustible. The mineral wealth of this country is too well known to require detailed mention here.

4. Wheat and barley are the staple products of all the valley counties except Los Angeles, El Dorado, and Sonoma. In Los Angeles and El Dorado wine-growing is the great interest; a large quantity of grain, however, is raised in the former county. In Sonoma the wine-growing interest predominates, although grain of all kinds is raised in considerable quantities, that county being the second wheat-growing county. Wheat and wine are considered the most profitable crops to raise.

The products of the leading crops of the State for 1866 were as follows, in round numbers: wheat, 14,000,000 bushels; barley, 11,600,000 bushels; oats, 1,860,000 bushels; hay, 360,000 tons; potatoes, 2,000,000 bushels; peanuts, 182,000 bushels; beans, 240,000 bushels; butter, 4,500,000 pounds; cheese, 2,100,000 pounds; wine, 1,800,000 gallons; wool, 5,230,000 pounds. Total value about $28,000,000, being several millions in excess of the gold products of the State.

Santa Clara, Solano and Yolo are the largest wheat-growing counties, aggregating more than half the crop of the whole State in 1866. In barley, Santa Clara, Monterey and San Joaquin take the lead, producing more than one-third of the entire crop. Santa Clara also leads in hay, cheese and silk; Mendocino in oats; Sonoma in potatoes; Sacramento in hops; Marin in butter; Santa Barbara and Los Angeles in wool, and the latter county in oranges, lemons, grapes, wine and brandy.

5. A variety of wheats are sown in California, but the white Australian appears to be the favorite, as it makes better flour, is productive, and rarely has any drawbacks in bad seasons; white Chili, Sonora and Club wheat are also sown in the interior counties. In Del Norte a white winter wheat is grown and preferred by many farmers because it is a winter variety, and also on account of the superior quality of its flour. In this county winter wheat is sown from September 1st to November 1st, and the spring varieties from February 1st to April 15, harvesting about the 10th of August; all grain sown by hand. In

Monterey wheat is sown from November to March, according to the amount of rain. Our Tuolumne reporter says "the land should be summer-fallowed, and the grain sowed before the first rains; it may be sowed as late as March, but is liable to injury by the drought; harvest last of May or June." In Yuba they sow from October to February, and harvest from 1st of June to 15th of July. None drilled.

Our San Francisco correspondent writes:

Seeding on summer fallow and dry-ploughed land has been done in September and October, but the experience of our farmers is that wheat sown prior to March in good seasons produces favorable crops. Harvesting of barley commences in the southern part of the State early in May; wheat is generally two weeks later, most of the crop being gathered in June, new wheat coming to market about the 1st of July. Ploughing is, on an average, not over four inches deep, some being only three inches, while in exceptional cases the soil is disturbed from six to twelve inches, but such instances are very rare. A practice called "volunteering" prevails among farmers, which consists of simply harrowing by implement, or, in many cases, brush-harrowing, viz: dragging limbs of trees over stubble, so that the waste grain of one harvest is made the seed for the next.

The average yield of wheat is reported at 20 bushels to the acre.

6. Of the natural grasses of California our Monterey correspondent says:

The most of our pasture plants are annual. In most places the *Erodium cicutarium*, or "alfileria," grows first, and immediately afterward the wild oats, *Avena fatua*. But in many places the first spring pasturage is furnished by two or three species of *Boraginaceæ*, viz: *Eritrichium chorisianum* and two other species. The cattle of all kinds eat these greedily and fatten on them. After these come up the annual *grasses;* two or three species of *Poa; Reardum jubatum, Polypagon monspeliensi, &c.;* and later in the season the perennials, such as the "bunch-grass," *Festuca scafrilla*, "grama," *Bizopyrum spicatum*, and *Elymus arenarius*, &c. Stock cattle are not fed at all here. They pasture 12 months.

Wild oats, when cut at the proper time, are said to make the richest hay. When there is sufficient range, horses, cattle and sheep pasture the entire year, the rainy season not excepted. In the greater portion of the State the natural grasses are turned into hay while standing, the extreme dryness of the climate being the cause. Cattle feed on this dried grass, which is very nutritious until the rains come, which destroy all the nourishment. When the rains come early, in October or early in November, the new grasses spring up in a few days, and if they get three or four inches high, frost does not stop their growing, and stock have excellent feed the season through. When the rains come in December, followed immediately by frost, cattle suffer greatly, and large numbers of horses, sheep and cattle are lost. The crop of natural grasses, when not fed down too much, seeds itself and yields from one to two tons of hay per acre.

Our Tuolumne reporter says that pasture is good from March to October, but stock will subsist the entire year. Usually the only expense is cost of herdsmen. Several correspondents estimate the cost of pasturing stock at from 50 cents to $2 per head per month—the average $1 per head.

7. The fame of California as a fruit-growing State is too widely extended to need lengthy notice in this chapter. The capabilities of the entire valley lands of the State, and also the foot-hills of the mountain range, to produce fruit, are perhaps unsurpassed if equalled in any part of the world. All the fruits of the temperate zone flourish well, and such semi-tropical fruits as oranges, figs, limes, citrons, olives, almonds and pomegranates are produced in great abundance. It is difficult to say which kind of fruit is most profitable, as all pay well until the supply exceeds the local demand. At present it is said that almonds and Madeira nuts pay best, though figs and oranges are quite profitable.

Our Toulumne correspondent says that grape-vines bear a good crop the third year from the cutting. Vineyards produce from four to five tons of grapes per acre, or from 500 to 700 gallons of wine. Grapes for wine-making sold last season at $30 per ton. The price of wine one year old varies from 40 cents to $1 25 per gallon, according to quality. Apple, pear, peach, plum, cherry, fig, orange and pomegranate come into bearing the third year, and produce good

crops. The price the past season for best apples, pears and peaches, was $40 per ton; plums five cents per pound. Our Yuba correspondent says:

Nearly all the fruits are adapted to our soil and climate. The apple, peach, plum, nectarine, apricot, cherry, quince, pear, fig, pomegranate, orange, lime, lemon, currant, etc., not only do well, but excel anything I ever saw. The grape, for wine and raisins, is perhaps destined to be one of the fruits most extensively cultivated. The yield is immense, and the profit very great. A vineyard of ten acres will yield a clear profit of $5,000 per annum, and orchards from $250 to $1,000 per acre, according to the kinds of fruit.

A correspondent in Amador says that he gathered three crops of apples from the same tree last year.

Los Angeles had, in 1866, nearly 2,000 lemon trees, 9,000 orange trees, 3,000,000 grape-vines, and made 600,000 gallons of wine and 20,000 gallons of brandy. Sonoma had over 2,800,000 vines and made nearly 200,000 gallons of wine and nearly 7,000 gallons of brandy. Santa Clara had 2,000,000 vines. In the State, according to the assessors' reports, there were, in 1866, nearly 1,700,000 apple trees, 480,000 pear trees, 1,090,000 peach trees, 234,000 plum trees, 28,000 almond trees, 17,000 English walnut trees, 13,000 olive trees, 3,000 lemon trees, 11,000 orange trees, and nearly 20,000,000 grape-vines—the numbers of each rapidly increasing.

OREGON.

1. From Oregon our reports are quite meagre; but four counties—Columbia and Multnomah on the northern border, and Lane and Douglas in about the centre of the tier of coast counties and of the settled portions of the State—returning answers to our circular. Columbia reports an increase of 50 per cent. in the value of farm lands since 1860, and Multnomah puts the advance as high as 100 per cent. Our Lane reporter writes:

Probably about 10 per cent.; but lands do not change owners in general, so as to ascertain the exact rate of increase; and we have to estimate chiefly by what the farmers seem to think their lands worth.

In 1860 the gold mines in Douglas attracted settlers; and the agricultural lands were taken up in small farms, and more cultivated than at present; but the mines having failed, and the population attracted thereby dispersed, the farms are in fewer hands, and much that was cultivated is now in pasture. No advance in price.

2. Lane county returns $2 per acre as the average value of unimproved lands in that county; a portion prairie, but mostly adjacent to hills or mountains; quality various—some quite good, but the declivities and barren hills detract from the immediate value of many tracts. In Columbia $3 50 is the average per acre; mostly timber and brush land; such timber as yellow and white fir, hemlock, spruce, cedar, soft maple, ash, and alder. In the eastern part of the county it is black mold underlaid with clay; advancing west it changes to a light sandy loam; will produce good grain, grass, and vegetables. The average in Multnomah is $1 50 per acre, including government lands; chiefly dry, timbered lands of fine quality, cedar, ash, oak, maple, and hemlock; capable of raising all kinds of grain and fruits suited to the latitude. Much of the surface of Douglas county is mountainous, and most of that which will serve for pasture is in private hands; but as there are still government lands vacant, unimproved lands cannot rate much above the minimum for public lands. Probably two-thirds of the lands of the State are for sale at government prices; settlements now being principally confined to a strip bordering upon the Pacific and embracing about one-third of the area of the State.

3. Columbia and Multnomah report iron ore in great abundance, and the former also coal and salt, with but little development beyond sufficient to demonstrate the presence of the minerals in large quantities, of superior quality, and easily worked. Both gold and silver are found in Douglas county, but not in large

quantities, and few of the mines are worked at present. The mountains are heavily timbered with fir, cedar and pine; the hills with oak and other deciduous trees.

4. Vegetables, fruit, and hay are the principal crops in Columbia, and are cultivated with success in large quantities and with profit. Vegetables and fruit are also largely and profitably grown, together with general crops, in Multnomah; whilst in Lane wheat is the staple, but oats and potatoes are successfully grown. Wheat yields from 20 to 30 bushels to the acre, and often weighs 62 to 64 pounds per bushel. Oats are superior; 25 to 40 bushels per acre; weighing 36 to 40 pounds to the bushel. Peas grow well, but are troubled with the bug or fly. Corn yields a fair crop, not very large, but of good quality. Barley does very well. Our Douglas reporter says:

Wool is the crop and sheep the specialty in this valley. Fine wool sheep have been mostly sought; but owing, as farmers suppose, to the long-continued rains of winter, sheep of the merino grades are not so healthy as the straight-wooled varieties, which now seem to be favorites.

White winter wheat and common red-chaff spring wheat are grown in Columbia; but the white is preferred as making the best flour. It is almost impossible to sow spring wheat, on account of the rain, so as to ripen in season to harvest before the fall rains set in. White wheat is also preferred in Multnomah for the same reasons. The Rio Grande, Club, and Mediterranean are grown in Lane, but the winter varieties are mostly raised. The winter wheat is sown in August and September, and the spring seed in March and April, as most practicable. Harvest commences the middle of July with the fall-sown crop, and extends into September for the spring grain. The seed is chiefly sowed broadcast; much being sowed after the plough and harrowed in. Our Douglas correspondent says that—

Owing to expensive transportation no more grain, fruit, or vegetables are raised than are needed for home consumption. Of wheat the Oregon smooth-head is preferred as best suited to the soil and climate; the fairest staple and about as productive as any other; sown broadcast any time from September to March when the ground is in order to receive it.

6. Our Columbia correspondent says that timothy and white clover grow almost spontaneously, he having a field of clover and timothy mixed (five acres) upon which no grass-seed was ever sown, except what may have been scattered by the birds and the cattle, from which he has cut annually, since 1861, three and a half tons per acre. Orchard grass and blue grass also do well. Cattle can subsist upon pastures all the year, except when the ground is covered with snow; expense about 50 cents per month per head. Stock will do well upon pastures alone about eight months of the year, as reported from Multnomah, where the cost per head, upon tame pastures, is estimated at about $12 per head for the season. In Lane the pastures are mostly what is called bunch grass, together with some of the larger kind of marsh grass, so common in the western States, though not so rank; but, being thick in the ground, yields good feed, excepting when injured by summer drought. About six weeks in winter and the same in summer dry weather the feed is short, but the rest of the year stock can do very well. The cost of pasture ranges from 75 cents to $2 per month, the latter for convenient pastures near towns. Young stock is allowed to range upon unfenced lands. In Douglas the bunch grass on the hills and a variety of red-top in the valleys are the most valuable wild grasses. Almost all the tame grasses succeed, but timothy above all others.

7. Apples, peaches, pears, plums, cherries, quinces, berries in variety, grow abundantly, and our correspondents claim superiority for their State in the culture of fruits adapted to that latitude. Our Lane reporter writes as follows:

For most kinds of fruit this country is very good indeed. Apples and pears do the best; peaches tolerably; cherries, though uncertain, are a good crop. The small fruits do exceedingly well—gooseberries, currants, Lawton blackberries, and black and red Antwerp raspberries yield profusely. Strawberries are a very singular crop; when they fruit, they yield

remarkably and of fine quality; but some seasons they blossom and do not bear, and yet not killed by the frost. Apples yield from 100 to 300 bushels per acre, the trees being yet small, though the crop is sure every year.

In Douglas all kinds of fruit suited to the temperate zone succeed well; apples, pears, and plums better than in the Mississippi valley; peaches and cherries not so well. The yield is abundant and the fruit fine; but as yet there is no market, and the surplus is fed to the hogs.

WASHINGTON TERRITORY.

1. From Washington Territory, occupying the northwestern extreme of the republic, north of Oregon and south of British Columbia, our returns include Clallam, the most northern, and Pacific, the most southern county; Wahkiacum and Clarke, (back of Pacific, on the Oregon border,) and Walla-Walla, a large county in the southeast. Owing to the decline of mining operations in British Columbia and the high tariff upon produce imported into Victoria, the price of farm land has decreased 50 per cent. since 1860. In Pacific there has been little or no change. Improved land is worth $10 per acre, chiefly confined to river bottoms. There is an increase of about 50 per cent. in Wahkiacum and 25 per cent. in Clarke, though in a few instances in the latter there has been a decline, owing to the freshets in the Columbia river. Walla-Walla reports an increase of 50 per cent. also, making the average increase of 25 per cent. for the counties reporting.

2. The average value of wild or unimproved lands in Clallam is $1 25 per acre, covered with a dense growth of heavy timber. When cleared the high land is capable of producing good crops of wheat, oats, barley, &c., and the low lands will yield, in addition to the cereals, abundant crops of hardy vegetables. The same average price rules in Pacific; land said to be of little value except for timber. Lands entered, but unimproved, in Wahkiacum have advanced 50 per cent. since 1860. There is still much government land in this county; but it is generally hilly and covered with fir timber, which will not pay for clearing. The settled land is chiefly valley—heavy, rich alluvial soil, suited to the cereals and vegetables. Clarke county averages $1 25 per acre and Walla-Walla $2, the former mostly uneven and heavily timbered with fir; soil about second quality; no vacant prairie land. In the latter county the land is prairie, good for wheat and splendid for grazing. There is a vast quantity of government land remaining for sale or subject to entry under the homestead laws or soldier's warrants in this Territory.

3. In the counties named no mineral resources of consequence, except coal, have been developed as yet. Coal is said to exist in large quantities in some localities. Timber is abundant. Our Clallam reporter says:

> The whole of this county, with the exception of about 3,500 acres of open land, is covered with a first-rate quality of timber, the principal part of which is red fir; the next in quantity being cedar, white pine, spruce, maple, and hemlock. The red fir that is within easy hauling distance of the salt water is being rapidly taken to the adjoining county and manufactured into lumber.

In Pacific the tide-land spruce furnishes excellent timber for shipbuilding, in addition to which there is an abundance of fir, hemlock, and cedar timber; but as yet little has been done to make it a source of revenue. In speaking of resources of the soil, our Wahkiacum reporter says:

> The valley land is almost inexhaustible. I have examined it down 10 feet and found it about as rich as it is at the surface. In the valley the principal timber is soft maple, alder, with scattering spruce, very thick underbrush. It costs from $25 to $50 per acre to clear it.

4. Beef and wheat are the staple productions of Walla-Walla county, its extended prairies furnishing a rich grazing region. Our Clarke reporter writes as follows:

> Wheat, hay, and apples are our chief crops. Wheat is cultivated by nearly all the farmers; average yield about 25 bushels per acre; yield of the county this year, (1867,) 75,000,

of which 55,000 was winter wheat. No rust, no weevil, very little smut, sound and healthy; average price $1 in coin; cost, 80 cents per bushel; net profit, 20 cents per bushel, $5 per acre in coin. Hay, mostly herds-grass, averages two tons to the acre; about 3,500 acres cultivated; 7,000 tons of hay, worth $8 per ton. In clover, 300 acres, two crops a year; two tons per acre; worth $12 per ton. Apples by far the most profitable; winter varieties worth 60 to 70 cents per bushel.

Potatoes are the staple crop in Wahkiacum, the yield being about 300 bushels, of 60 pounds, to the acre under the best cultivation. Our correspondent made last year a net profit of $75 per acre.

From Pacific our correspondent writes as follows:

The business which employs the most men here, and the greatest amount of capital, is the cultivation of oysters. From 60 to 70 men are employed, with a corresponding number of sloops, boats, scows, &c., in transporting them from the natural to private beds. By an act of the legislature every citizen is granted 10 acres where there are no natural beds of oysters. This ground is covered with young oysters at a cost of about $180 per acre, 3,000 baskets being about what one acre will grow. These are fit for market in from three to five years, and bring $1 per basket. The cost of gathering is about 25 cents per basket, aside from the first cost of planting. The amount of oysters annually shipped from this shoal water is about 40,000 baskets, the greater part going to San Francisco. About 5,000 baskets are sent to Oregon. The past winter has been very hard on the oystermen, many thousand bushels of oysters having been killed by the severe cold weather.

5. In Clarke county white winter wheat is mostly sown, it being considered the most productive and making the best flour. Slender Straw Spring, Noe Island, and Hybrid, are also cultivated, the latter being the best spring variety. Winter wheat is sown in September and October, and harvested in August; spring wheat sown in March and April, though sometimes as early as February, and harvested in September; but small proportion drilled, being generally sown broadcast, upon ploughed ground, and harrowed in. The Mediterranean spring wheat is preferred in Clallam, being less liable to smut than other kinds tried; none drilled; sown in March; harvested in September. There is very little wheat cultivated in Pacific or Wahkiacum, though the climate and some of the soil are well adapted to its growth. The white club spring wheat is grown in Walla-Walla, winter varieties generally freezing out.

6. White clover, wild red top, bunch grass, a coarse wide blade swale grass, and a kind of winter grass, a coarse variety between English rye and blue grass, growing upon the upland, are the principal natural grasses. Red clover and timothy are successfully cultivated. Our reporters in Pacific and Walla-Walla state that stock will subsist upon pastures and do well all the year; in Clallam and Wahkiacum eight months are given as the limit during which cattle can subsist exclusively upon pastures; and in Clarke seven months, at a cost of $3 per head. The estimated cost in Clallam is $12 per head for the season.

7. All our correspondents report favorably upon the capabilities of the Territory for fruit culture. Our Clarke reporter answers the questions as follows:

Apples, pears, plums, cherries, gooseberries, raspberries, strawberries, currants, and blackberries, are well adapted to our soil and climate. Peaches and grapes not so well suited. Of apples, the Roxbury Russet, Rhode Island Greening, Pearmain, Spitzenburg, and Jersey Sweeting, bear at the age of four years from grafting, if set out at one year old.

Our Wahkiacum reporter says apples grow so abundantly that they will not pay to market; hence he turns them to profit by feeding them to his hogs, for which purpose he thinks them better than potatoes.

In Pacific apples, pears, and plums grow in abundance. Apples sell at 50 cents per bushel. The orchards are all young, and little or no fruit is yet shipped from the county. Our Walla-Walla correspondent says:

This is one of the best countries in the world for apples, pears, plums, peaches, cherries, grapes, &c. Four years ago I planted 1,000 small yearling trees. Last season I had 1,000 bushels of fine fruit, 800 bushels of which were peaches. This fruit was sold at from $4 to $12 per bushel in gold.

NEW MEXICO.

1. Our returns from the Territory of New Mexico embrace the counties of Mora and Valencia. Mora county reports 25 per cent. advance in the price of farm land since 1860. In Valencia there appears to be no settled price. If a person wants to purchase, he is asked an exorbitant price, and whoever wants to sell must sell for almost nothing.

2. The wild lands in Mora are of no value except where timber is plenty; they are chiefly mountain and prairie, good for hay and pasture only.

In Valencia lands held by private parties fluctuate in accordance with the necessities of the holder or the wants of the purchaser. There are large tracts of land, however, subject to entry under the homestead laws, or purchase at government prices. They are at some distance from settlements, and are visited by hostile Indians. The country is very mountainous, but has rich valleys in which almost anything will grow to advantage, when water can be procured for irrigation.

3. Gold, silver, copper, iron, lead, cinnabar, gypsum, quicksilver, and coal, abound in the districts reporting. The Moreno mines (gold) are in the northern part of Mora county, about 50 miles from the town of Mora. A company has been organized with a capital of $100,000 to work these mines. Coal is found in great quantities in Valencia county, in addition to gold, silver, iron, lead, copper, and quicksilver, all of which may be worked to advantage as soon as the government gives reliable and permanent protection against the Indians. The mountains are rich in timber, mostly pine and ash, with some oak, and in the valley of the Rio Grande a great deal of cottonwood is encountered.

4. The special crops in Valencia are corn and wheat; and in Mora corn, wheat, oats, beans, and peas, the profits in the latter county being about 50 per cent., with very little labor. The farming implements used are for the most part a century behind the age. The plough in general use consists of a wooden pole, with a sharp iron point, and with a wooden handle to it. The threshing of wheat is done by horses, mules, sheep or goats, kept running over it until the wheat is threshed out, by which process the straw gets chopped up and is left to decay.

5. Spring wheat is chiefly grown in New Mexico, because they have no fences to protect winter wheat, and the winters being very soft, the snow is very light, and remains on the ground but a short time. There are two kinds of wheat reported; one is called the New Mexico wheat, which is a dark, small grain; and the other of lighter color called the Sonora wheat. Some prefer the former as heavier and more substantial, while others prefer the Sonora, because it ripens earlier and yields a whiter flour. The sowing is mostly done in Valencia in March, and the harvesting in July and August; and in Mora county it is sown from 15th of March to 1st of May, and harvested from 25th of August to 10th of November. None drilled.

6. The grasses in the Rio Grande valley are not of so much account as upon the hills and elevated plains, where there are four kinds of very rich gramma grass. There are also different kinds of herbs upon which sheep thrive well during the different seasons of the year. On the pasture lands off from the settlements stock can feed and remain fat all the year round, without shelter. The cost is only the wages of the herdsmen, who receive from $10 to $20 per month and rations. Indians often kill the herders, however, and drive off the stock.

7. Fruits have not received much attention in Mora county, but apples, peaches, plums, and apricots are best adapted to the climate. Our Valencia reporter says:

The capabilities of this country for fruit are undoubtedly very great, if we may judge by the orchards of the Puebla Indians, eight miles north of this point, (Los Lunas.) They grow elegant peaches and splendid grapes, and fair apples, plums, and apricots. The middling quality of the fruits last named is not to be attributed to a deficiency in soil or climate, but rather to the fact that grafting is not practiced.

WINE GROWING IN CALIFORNIA.

[As represented at the Universal Exposition at Paris, in 1867.]

SIR: In response to your request for information respecting the wine-growing and the wine-production of California, made during your examination of the California samples at the Exposition, I now have the pleasure to send you the following interesting résumé of the subject which I have recently received from Mr. Carmany, editor of the Annual Review of the Mining and Commercial Interests of the Pacific States.

This article describes better than anything I have been able to prepare the present condition of the wine-producing interests of California.

I have inserted one or two paragraphs upon the soil of the vine regions, and have appended a list of the exhibitors of California wines.

Very respectfully, yours,

WM. P. BLAKE,

State Commissioner, California, to the Universal Exposition of 1867, *and Special Agent of the California Wine-producers' Association.*

Hon. MARSHALL P. WILDER,

Chairman of Committee No. 9, *Universal Exposition at Paris,* 1867.

WINE-GROWING INTEREST OF CALIFORNIA.

The wine-growing interest during the past three years has been rapidly increasing in importance, and if unfavorable circumstances do not intervene within the next decade, will probably outrank in value any single agricultural product in the State. Our wine-growers find a great variety of soil admirably adapted for vineyards, in conjunction with a climate, or rather climates, which are more favorable for wine-making than can be had in any portion of Europe. On the rolling lands and foot-hills on both the Sierra Nevada and Coast Range of mountains, which form the eastern and western boundaries of the State, the soil, though varying somewhat in composition and proportion of ingredients, is mainly formed by volcanic debris which produces grapes in the highest degree of perfection known.

The soils along the slope of the Sierra Nevada present a great variety in their appearance and composition. Some are derived chiefly from the disintegration of granite and metamorphic rocks, and others from clay-slates or sandstones or from a mixture of these materials with disintegrated lavas. In extensive regions along the foot-hills the soil is formed chiefly by the breaking down of lava and tufaceous deposits, or of the alluvions of ancient rivers which are charged with materials of volcanic origin. Some of the soils in the gold region which produce good grapes are quite red from the abundance of the sesquioxide of iron; in others oxide of iron is in small quantity and the soil has the ordinary clay color. In favorable locations very little irrigation is required, and in some places it is not necessary. Where there are mining canals or ditches along the hill-sides many vineyards below them receive water enough by percolation to sustain the vines during the most severe droughts.

The vines, as a general rule, bear abundantly, the exceptions being in a few localities subject to late frosts in the spring, or occasional heated terms of a few days during some summers. These exceptions, however, are fully equal in productiveness to the average vine lands of France and Germany, and are only mentioned here to show that there are occasional imperfections in a climate that would otherwise be without blemish for wine growing.

The introduction of cultivated vines dates in California back to the establishment of the missions of the Catholic priests, who first settled in the southern portion of the State in 1769. These priests brought with them three varieties of vines taken from the neighborhood of Seville, Spain, and which, it was believed, were better suited to the climate of California, and were more hardy and productive than any other kinds. Two of these vines (colored grapes) flourished well, while the third, a white grape, was soon discarded from cultivation. The names of the vines are not now known, and being long acclimated, some of the peculiarities of the original stock have been changed, so that it is probable the so-called Mission vines will never be identified with the parent stock in Spain. General Vallejo, who is probably the best authority in the State on the subject, claims that the larger portion of the native grapes, cultivated north of Monterey, are a different variety from those grown south of that town and commonly known as the Los Angeles grape. This statement is confirmed in part by the difference in size, color, shape of bunches and berries, and character of skin, the wine made in the different sections of the State also having distinct characteristics of taste and

aroma, which cannot easily be confounded together. For the purposes, however, of this article the vines introduced by the priests will be termed the native or Mission grape, as their product is to be considered in a commercial point of view.

California possesses the peculiarity of having distinct climates, as it were, in different portions of the State, the result of which is the production of a greater variety of wine than can be found in any one country in Europe.

Properly, the State should be divided into three wine districts, as the wines of each vary essentially from those produced in the others. For convenience sake we will name them the Los Angeles, Coast Range, and Sierra Nevada wine districts. The first includes all that portion of the State lying south of Point Conception, comprising Santa Barbara, Los Angeles, and other southern counties. The wine made in this district, when allowed to ferment fully, contains from 14 to 16 per cent. spirit, has no decided aroma or bouquet, while the flavor is indifferent, with considerable taste of alcohol. The wine from this section was the first marketed in the State, and in the absence of competition soon had a large domestic consumption. As the other sections of the State made wines, the demand for the Los Angeles variety decreased, until at the present time the great bulk of the wines sold in San Francisco and exported comes from the Coast Range district.

This district comprises the foot-hills and valleys on both sides of the Coast Range mountains from Point Conception to the northern boundary of the State, a tract of territory about 400 miles long by 40 to 60 miles wide. In it are included Sonoma and other valleys whose wines have a general reputation second to no others in the State. They possess the peculiarities of the claret, Sauterne, and hock wines to a very great degree, and are the only acid wines of that character produced in California. Port, Angelica, Muscat and other manufactured wines can be and are made in this district as well as in the others, but the fully fermented wines of Sonoma and other adjoining valleys have an abundance of tartaric acid, with a flavor, aroma, and bouquet not to be found elsewhere. Besides domestic consumption the acid wines of this district are fast growing into favor for exportation to New York and other markets, where, if received in good order, they are highly prized. The acid wines in this district contain from 12 to 16 per cent. spirit, mostly averaging about 13½ to 14 per cent.

Wines produced in the Sierra Nevada district vary materially from the others, the tendency being towards sherry, Malaga and similar styles of wines. With few exceptions they are of a straw color to brown, are dry in taste, and have a most decided flavor, bouquet and aroma. Very limited quantities of red wines are produced in this district, the grapes containing little coloring matter compared with the same variety grown in the Coast Range district. From its advantages of climate, the season from April to October being continuously warm, and the vast area of country unfitted for any other production, this district promises eventually to be the greatest wine growing section of the State. The general quality of its products, when known, will commend themselves to parties who prefer Spanish and Madeira wines to those of France and Germany, and probably not many years will elapse before a vigorous competition will commence for the entire market of the United States. The average percentage of spirit in the wines of this district varies from 14 to 20 per cent., according to the manner of manufacture.

As stated in the commencement of this article, the wine-growing interest has been increasing rapidly within the last few years. According to the assessors' reports made to the surveyor general of the State for 1866, (the latest returns,) there were 19,710,814 vines planted, the largest counties being Los Angeles, 3,000,000; Sonoma, 2,830,195; and Santa Clara, 2,000,000. The total production of wine for the same year (by the same authority) was 1,791,633 gallons, of which Los Angeles county produced 600,000 gallons; El Dorado, 235,680 gallons; and Sonoma, 199,030 gallons. Of brandy there was produced in the same year 127,140 gallons, the largest counties being Los Angeles, 70,000 gallons; Sonoma, 6,838 gallons; and Sacramento, 5,714 gallons. The assessors' returns are known to be greatly understated in the actual quantities of vines planted and wines and brandy produced. Competent and and well-informed parties put the number of vines actually planted in the spring of 1866 at fully 30,000,000 in the State, and the product of wine for that year at least at 2,500,000 gallons, and of brandy at least 200,000 gallons. For 1867 it is believed the wine crop was fully 3,500,000 gallons, and about 400,000 gallons of brandy. This amount is comparatively small to the product which may be expected in a few years, as in 1870 every vine planted in or before 1866 will be in large bearing. Besides this large number of vines then planted, a great increase will have been made, as new vineyards are being set out every year, and old ones added to, throughout the entire State. It is estimated that at least 3,000,000 cuttings are planted each year, and the practice will doubtless be kept up, in case profitable markets for wine can be had. Among the most gratifying features of this interest in this State is the steady improvement in quality of wine, showing care on the part of the grower, both in the making and after-keeping of the product. The minds of the wine-growers are also fast being disabused of a very common fallacy, that all varieties of European wines can be made from the Mission or Los Angeles grape. This change of opinion is insuring the propagation of the best varieties of foreign vines, both white and colored, hardly a vineyard now being set out which does not contain a large number of cuttings from the most famous varieties of France, Germany, Spain, and Italy. The varieties which are most in request for the purpose at present are the black Zinfindel, a Hungarian seedling of the black Pineaux, the true cham-

pagne grape of France; the white Johannisberger, and green Reisburg, and red Traminer of Germany; the white Malaga, Alicante, and Muscatella of Spain; Fihel Zagos and white Tokay of Hungary; the white and golden Chasselas, white and black Pineaux, Orleans, Chacelos du Foye, Montillardo and Catalyac of France, and the Verdelho of Madeira. All these varieties have been tried in the Sierra Nevada district by various parties, the most successful and largest grower being B. N. Bugby, of Folsom. This gentleman has for several years been experimenting in wine-growing, having some 72 varieties of grapes in 56 acres of vineyard, all in full bearing. In 1866 he made separate wines of 19 different kinds of grapes, and in 1867 made 14 varieties of wine, some of them being made from mixed grapes. The result in every case where proper care was taken was the production of wines superior in many respects to those made from the Mission or Los Angeles grape. In Sonoma valley and Napa county several of the above-named varieties have been planted in large numbers, and not many years will pass before varieties of wine will be had in that district which will safely challenge the best wine of Europe to contest for superiority with them.

The great want of growers at present is more extensive markets for their wine, the home consumption being already largely supplied, so that but small increase in the local demand may be expected. Efforts are now being made to introduce the finer grades of wine, without chance of adulteration or injury during shipment, it being shipped per steamer, in glass in cases, so as to insure against all the above contingencies.

In the distilling of grape brandy in California great progress has been made during the last three years. Prior to that time almost the total product was distilled from pumice, the skins, stems and seeds of grapes after pressing. Where red wines had been made the pumice in many cases had fairly rotted before distillation took place, while in others the fusel oil contained in the seeds by crushing was set free to be vaporized with the spirit, it being a more volatile fluid. The brandy was made in the commonest kind of whiskey stills, which, combined with lack of practiced skill in making grape spirit, caused the production of an article that was full of gross imperfections, and had to be rectified before it was in fair marketable condition. The great increase in the wine crop in 1865 lowered prices so much that large quantities of wine in that and succeeding years have been made into brandy, while the stills have also been much improved in construction, as well as the skill of those using them. The result of these changes has been the production of a better class of brandy, which, in some instances, has been considered by good judges fully equal in quality to the best brands of France of similar age. That our brandy is improving is noticeable from the fact that it is now being extensively used in private dwellings, where French brandy only has heretofore been used. Among other enterprises inaugurated in this city during the past year has been that of the Pacific Refining Company, who rectify and improve the commonest kinds of grape spirit, so that it resembles in taste and aroma the medium grades of French brandy. Some of this brandy has been sent to New York, where it is reported to have been highly valued, and large orders are said to have been received for it to be shipped to that place. The time is not far distant when both wines and brandy from California will be found on extensive sale in all portions of the Union, and on their intrinsic merits be considered equal to any varieties imported.

The business of manufacturing sparkling wines or champagne on this coast has made great progress within the past year, and, in fact, the successful manufacture in California of pure sparkling wine with good bouquet and aroma is now admitted by all who have taken interest enough to inform themselves on the subject. The attempts at making sparkling wine in this State have extended over a period of 13 years, and although progress has, in some instances, been made towards producing a fair quality of wine, still the manufacture has always been uncertain both as to quality and quantity, until the present time. In speaking of sparkling wine or champagne it is meant wine produced by natural fermentation in the bottle. This definition is particularly made to avoid confounding it with a fictitious effervescing wine that has been manufactured here very extensively for a number of years, and by its bad reputation has much retarded progress in true wine making. This last wine is made by putting ordinary still wine, sweetened and flavored, into bottles, into which carbonic acid gas is forced through the use of a soda fountain. The result is a liquid that gives headache, nausea, and general derangement of stomach to those who drink it, while wine made through natural fermentation is strictly healthful, and is prescribed by many physicians to convalescent patients as being more wholesome and stimulating than brandy of the best quality. The first attempts to make sparkling wine by natural fermentation in bottles was by Sansevaine Brothers, in 1855 and 1856, in San Francisco, they importing an expert from France for the purpose. After experimenting two years without success they abandoned the attempt, and the same expert was engaged (after a visit to France) by Crevolin Brothers, who were also unsuccessful. The next party to try was Colonel Haraszthy, who failed, and was succeeded by the Buena Vista Vinicultural Society. This society commenced operations in 1863, and at great expense, after many attempts, succeeded in making limited quantities of good wine, which has been sold in this market during the past two years. Some idea of the difficulties attending the making of sparkling wine may be had from the fact that the different parties named expended over $200,000 before even partial success was attained. This is a comparatively enormous sum, but the following brief sketch of the operations of the Buena Vista Vinicultural Society, at their establishment in Sonoma valley, will show some of the risks in

wine making. This society commenced in 1863, by putting up 9,000 bottles of wine, which, failing to sparkle, were uncorked and the wine sold for vinegar or distilling. The next year they put up 72,000 bottles, of which they sold between 500 and 600 dozen, and had to uncork the balance and dispose of as in 1863, for making vinegar, &c. In 1865, they put up 42,000 bottles, which, fermenting too vigorously, after losing 50 per cent. by breakage, the balance had mostly to be uncorked to save the bottles. The wine uncorked was sold for the same purposes as in preceding years. In 1866 they put up about 40,000 bottles (a portion of which is still in process of manufacture,) from which the officers of the society expect, in connection with the 1865 wine, to market about 2,000 dozen. In 1867 the society put up 90,000 bottles of wine, which, it is expected, will prove of excellent quality. All the wine used by the foregoing named parties was of the California grape, and considered well suited for champagne making. (This wine received "honorable mention" at the Paris Exposition, this being the highest grade of prizes awarded to any American wine.) In the spring of 1867, Isador Landsberger, who had associated with him Arpad Haraszthy, concluded to attempt the making of sparkling wine in this city, the latter named gentleman having been educated in France and served an apprenticeship for several years in some of the best champagne making establishments in that country. Making experiments with small quantities of wine, and using artificial heat to stimulate fermentation, these parties, after several failures, succeeded in making an excellent quality of wine, and at once engaged in manufacturing to supply the market. The first wine for sale was put on the market about the 10th of September last, since which time Mr. Landsberger has delivered an average of 200 dozen per month, say 750 dozen in all. The demand for this wine has been in excess of its production, so that preparations have been made to extend the manufacture in 1868 to an average of 600 dozen per month, deliveries at that rate to commence in April next. Finding it difficult to obtain wine of suitable quality for the manufacture, the proprietor of the enterprise purchased in advance 20,000 gallons of wine, the product of a desirable vineyard in Sonoma valley, and had the wine made according to instructions at the late vintage. The method of making the wine was different from the ordinary manner, and the result was so favorable that the wine was found of the desired quality and fit to remove to this city within a month of the grapes being pressed. Believing that wine made in whole or part from foreign grapes would possess a finer bouquet and aroma, Mr. Landsberger has bottled considerable Muscatel, white Muscat and Reisling wines, which are now in course of manufacture. From the manner in which the wine is ripening, it is believed that a wine resembling sparkling Moselle in its most valuable qualities will be produced. The manufacture of sparkling wines of good quality in California will not only benefit wine growers generally, by giving them a new market for their product, but will also drive out in time imported champagne, not only from this State but from the other sections of the Union. The home market of itself is a large one, the importation of French champagne in 1866 being over 11,000 dozen, which cost, duty paid, laid down to importers, fully $200,000. The importations for 1867 were still larger than those of the preceding year. The lowest-priced champagnes sell at $15 per dozen; the second quality at from $20 to $22; and the best at $28 to $36 per dozen. The wine made by Mr. Landsberger is fully equal in quality to the second-class imported champagnes, and is sold for about half the price. Competent and disinterested judges who have examined the wine state that it will, in time, take high rank for its excellence, it needing a little age before drinking, and possibly a somewhat different flavoring. In the latter respect experience has shown that the ingredients used in France to flavor do not produce the same taste in California wines; also that the latter need no addition of brandy in making, as is the case in Europe.

BRITISH AGRICULTURAL STATISTICS, 1867.

Total acreage and percentage proportions of each kind of corn and green crop in each division of the United Kingdom.

Description of crops.	Years.	England.		Wales.		Scotland.		Total for Great Britain.		Ireland.		Isle of Man.		Channel Islands.				Total for United Kingdom.	
														Jersey.		Guernsey,&c.			
		Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per ct.	Acres.	Per ct.	Acres.	Per cent.
CORN CROPS.																			
Wheat	1866	3,126,431	42.4	113,862	21.8	110,101	8.1	3,350,394	36.2	299,190	13.7	8,075	29.6	2,702	86.0	990	48.5	3,661,351	32.0
	1867	3,140,025	42.4	116,733	22.4	111,118	8.2	3,367,876	36.3	261,908	12.4	7,821	28.9	2,352	83.2	968	44.9	3,640,925	31.9
Barley or bere	1866	1,877,387	25.5	146,323	28.1	213,619	15.6	2,237,329	24.2	152,520	7.0	7,736	28.4	111	3.5	532	26.1	2,398,228	20.9
	1867	1,892,338	25.6	148,340	28.4	218,486	16.0	2,259,164	24.3	172,637	8.1	7,386	27.3	137	4.8	623	28.9	2,439,947	21.3
Oats	1866	1,503,990	20.4	251,893	48.3	1,004,040	73.5	2,759,923	29.8	1,699,695	78.2	11,010	40.4	288	9.2	428	21.0	4,471,344	39.0
	1867	1,506,361	20.4	247,006	47.4	997,120	73.1	2,750,487	29.6	1,659,412	78.5	11,347	42.0	303	10.7	449	20.8	4,421,998	38.7
Rye	1866	50,570	.7	2,452	.5	7,055	.5	60,077	.6	7,794	.4	9	.....	13	1.3	27	4.4	67,920	.6
	1867	42,675	.6	3,124	.6	7,066	.5	52,865	.6	7,673	.4	29	.1	21		30		60,618	.5
Beans	1866	492,586	6.7	3,534	.7	28,537	2.1	524,657	5.7	12,204	.6	320	1.2	15		43		537,239	4.7
	1867	505,539	6.8	3,435	.7	27,324	2.0	536,298	5.8	11,153	.5	255	.9	12		37		547,755	4.8
Peas	1866	314,206	4.3	3,010	.6	3,188	.2	329,404	3.5	2,630	.1	116	.4	13		21		323,184	2.8
	1867	312,409	4.2	2,766	.5	2,915	.2	318,090	3.4	2,354	.1	201	.8	2		50		320,697	2.8
Total corn crops	1866	7,365,170	100.0	521,074	100.0	1,366,540	100.0	9,252,784	100.0	2,174,033	100.0	27,266	100.0	3,142	100.0	2,041	100.0	11,459,266	100.0
	1867	7,399,347	100.0	521,404	100.0	1,364,029	100.0	9,284,780	100.0	2,115,137	100.0	27,039	100.0	2,827	100.0	2,157	100.0	11,431,940	100.0
GREEN CROPS.																			
Potatoes	1866	311,151	11.3	44,266	31.8	143,426	21.6	498,843	14.0	1,050,353	70.9	4,302	35.2	1,368	26.0	677	23.0	1,555,543	30.7
	1867	289,611	10.8	45,077	32.6	157,529	23.6	492,217	14.1	1,001,545	70.0	4,011	31.6	2,062	36.6	789	25.7	1,500,624	30.3
Turnips and Swedes	1866	1,610,610	58.3	62,442	44.8	478,990	72.2	2,152,042	60.4	317,198	21.4	7,246	59.4	1,812	34.5	247	8.4	2,478,545	48.9
	1867	1,621,123	60.2	67,927	49.1	484,800	72.6	2,173,850	62.2	335,711	23.4	8,170	64.5	1,547	27.4	142	4.6	2,519,420	50.9
Mangels	1866	254,081	9.2	3,864	2.8	852	.1	258,797	7.3	20,162	1.4	55	.5	701	13.3	216	7.3	279,931	5.6
	1867	253,937	9.4	3,345	2.4	844	.1	258,126	7.4	18,805	1.3	47	.4	730	13.0	244	7.9	277,952	5.6
Carrots	1866	15,598	.6	295	.2	916	.2	16,809	.4	3,798	.2	226	1.8	1,043	19.9	202	6.9	22,078	.4
	1867	14,722	.5	346	.2	855	.1	15,923	.4	3,360	.2	233	1.9	913	16.2	221	7.2	20,650	.4
Cabbages, kohl rabi, and rape.	1866	159,539	5.8	1,329	1.0	5,075	.8	165,943	4.7	49,949	3.4	69	.6	171	3.3	75	2.6	216,207	4.3
	1867	128,863	4.8	679	.5	4,150	.6	133,692	3.8	35,703	2.5	17	.1	159	2.8	152	4.9	169,723	3.4
Vetches, lucern, and any other crop, except clover or grass.	1866	408,933	14.8	27,069	19.4	33,998	5.1	470,000	13.2	40,145	2.7	310	2.5	158	3.0	1,521	51.8	512,134	10.1
	1867	383,478	14.3	21,013	15.2	19,864	3.0	424,355	12.1	37,128	2.6	192	1.5	225	4.0	1,527	49.7	463,427	9.4
Total green crops	1866	2,759,912	100.0	139,265	100.0	663,257	100.0	3,562,434	100.0	1,481,605	100.0	12,208	100.0	5,253	100.0	2,938	100.0	5,064,438	100.0
	1867	2,691,734	100.0	138,387	100.0	668,042	100.0	3,498,163	100.0	1,432,252	100.0	12,670	100.0	5,636	100.0	3,075	100.0	4,951,796	100.0

IMPORTATIONS, ETC.

Wheat from—	Imported.		Entered for home consumption.	
	1866.	1867.	1866.	1867.
Russia.....cwts..	8, 937, 199	14, 025, 236	9, 028, 935	14, 159, 861
Denmark.....do...	506, 236	418, 012	507, 709	422, 509
Prussia.....do...	4, 401, 409	5, 572, 263	4, 416, 663	5, 603, 694
Schleswig, Holstein, and Lunenburg.....do...	187, 938	127, 222	188, 529	127, 632
Mecklenburg.....do...	733, 571	651, 884	734, 664	654, 569
Hanse Towns.....do...	878, 912	700, 935	886, 586	705, 794
France.....do...	3, 473, 130	597, 405	3, 496, 931	599, 402
Turkey and Wallachia and Moldavia.....do...	528, 433	2, 446, 638	529, 739	2, 455, 311
Egypt.....do...	33, 831	1, 451, 774	33, 831	1, 458, 457
United States.....do...	635, 239	4, 188, 013	639, 852	4, 219, 966
British North America.....do...	8, 789	683, 127	8, 789	684, 492
Other countries.....do...	2, 831, 642	3, 783, 060	2, 836, 387	3, 796, 682
Total.....	23, 156, 329	34, 645, 569	23, 308, 615	34, 888, 369
Wheat flour from—				
Hanse Towns.....cwts..	347, 012	444, 710	348, 351	450, 941
France.....do...	3, 640, 320	1, 234, 742	3, 666, 740	1, 242, 719
United States.....do...	280, 792	722, 976	282, 664	723, 211
British North America.....do...	40, 650	121, 503	41, 123	122, 817
Other countries.....do...	663, 506	1, 069, 038	665, 597	1, 075, 361
Total.....	4, 972, 280	3, 592, 969	5, 004, 475	3, 615, 049

SEED WHEAT FOR THE NORTHWEST.

A letter has been received by the Commissioner of Agriculture, from Hon. Ignatius Donnelly, M. C., from Minnesota, enclosing a communication from the president of the Minnesota Agricultural Society, asking the aid of the department in procuring new varieties of spring wheat. The following extract from this letter is given:

While the lands are new we produce abundant crops of excellent quality, but by continuous cropping the yield rapidly diminishes in quantity and quality, falling off from 25 or 30 bushels to 20, 15, or even 10 bushels per acre. I am satisfied that this diminished yield is to be attributed to a degeneracy in the vitality of the seed more than exhaustion of fertility in the soil. Near me a field has produced 18 successive crops of wheat, yet a new seed on the 18th year brought the yield up to 21 bushels per acre.

The wheat relied upon in this State for general crop is called Fife, and has been in use for a number of years. This variety retains its reproductive properties better than any other we have yet tried. The Canada Club, held in high esteem some years ago, has completely disappeared; and so thoroughly are we convinced of the necessity for a further change that to devise means to renovate our seed forms the burden of our society discussions. From my own experience, I am convinced that could every farmer be furnished this spring with a new, good seed, adapted to our soil and climate, it would benefit the State from $2,000,000 to $3,000,000 in one year. If we plant but 1,000,000 acres, and gain but three bushels per acre, it would give us a clear gain of over $3,000,000 in money.

The following is the response of the Commissioner:

DEPARTMENT OF AGRICULTURE,
Washington, D. C., April 28, 1868.

SIR: Your favor of April 22, covering a letter from T. T. Mann, esq., President of the Minnesota Agricultural Society, relative to the reduction of the average of wheat production in Minnesota, furnishes additional evidence of the rapid deterioration of seed wheat under the mode of culture generally practiced in the west. Under the most favorable circumstances a change of seed may be desirable, from climatic or other causes; but, while so little regard to selection is paid, and so many causes of decline in vitality are permitted to exist, there

is a greater necessity for frequent introduction of samples of superior grain. I have endeavored to give efficiency to the distribution of cereals, not only by sending larger packages, but by discriminating in the selection of persons to test them, that inducements for a greater care in the experiment, and a probability of more general subsequent distribution, may better secure the beneficent aims of the department and accomplish better results for agriculture. To this end I have relied, and still propose to rely, upon boards of agriculture, and officers of agricultural societies, boards of trade, and such representative farmers as may be recommended by members of Congress and others.

It was my purpose to secure varieties of wheat for experiment the present spring, particularly for Minnesota and spring-wheat-growing States of the northwest, but was not able to satisfactorily execute my designs in the limited time from the date of my accession to this office and the period of spring sowing. I did succeed in obtaining a quantity of seed from Canada, which failed to answer my expectations, and I declined to permit its distribution.

It is my intention to make special efforts to procure new varieties of spring wheat (as well as winter wheat) for the section which you represent. The importance of the subject is fully admitted, and its promised pecuniary results are even greater than appears in your representation. I know of no single accomplishment possible for this department by which results so immediate and beneficial can be attained.

I am not prepared to indorse the suggestion of Mr. Mann, to send an agent to Minnesota, "rent a farm, plant it with new varieties of wheat, and sell the seed to farmers at a price sufficient to cover the expenses of the enterprise;" not so much because of the inherent impropriety of such a course, which is common under foreign governments, but from the popular (and I believe well-founded) opinion, that this government should advise and facilitate such enterprises, leaving to individuals the direction, pecuniary responsibility, and profit of them. Such a course is certainly more simple, safe, and, I imagine, will prove more satisfactory and beneficial in the final result.

Very respectfully, your obedient servant,

H. CAPRON, *Commissioner.*

Hon. I. DONNELLY.

AMERICAN PLOUGHS IN EUROPE.

The following notice of American ploughs at the Paris Exposition is translated for the Monthly Report:

American ploughs at the Paris exhibition, 1867, were few in number, but furnished a complete illustration of the excellent construction and solid execution of farming implements in the United States. With but few exceptions, all these ploughs were furnished with beams and handles of wood, but this was of such excellent quality, that wood in this instance, on account of its extraordinary toughness, withstanding the utmost amount of tear and toil, is to be preferred to iron most decidedly. With us, such an excellent material (white oak and hickory) is wanting entirely; otherwise it ought to be substituted for iron at once.

The form of the American smoothing board has been applied with us long ago, and wherever the soil is too cohesive for the Ruchadlo plough, it always has proved to be the best, as it holds a middle place between the long, sharp, and screw-like English board and that of the Ruchadlo plough, composed of two straight sides uniting above in form of a triangle. As the English board excels in heavy, tough clay soil, while the latter is adapted best to loose, falling ground, the American share is the best for a medium soil to be turned entirely upside down. All these ploughs exhibited were swing ploughs, sometimes with a stilting-wheel attached to the fore part of the beam, as also frequently used with us, while fore-carts, (running on two wheels to rest the beam,) such as are used in England and on the continent, seem to be but of little use in America.

The cutter is peculiar in most American ploughs; either a common cutter like ours, attached to the beam or to the share, in form of a vertical blade, as high as the plough is to go down

into the ground, one piece with the share itself; or at last a revolving cutter, attached below the beam. The latter arrangement seems excellent to cut turf and roots in marshy ground that is to be broken up.

The most interesting ploughs from America were exhibited by—

1. Collins & Co., Hartford, Connecticut. Collins & Co.'s ploughs are of different sizes, from three inches to one and a half feet in depth, otherwise built on the very same plan; thus the connecting irons, screws, &c., of one size will do for all the others. Their steel smoothing-boards, cast, according to statements, in polished forms, are highly polished, so as to warrant easy work. Their extraordinary lightness is another advantage, those for seven inches depth weighing forty, and those ploughing fourteen inches deep no more than ninety-five pounds.

2 Deere & Co., Moline, Illinois. The same as the former, except as to double or Ruchadlo shares with some numbers, on the Bohemian plan, of German, probably Westphalian, steel, as the manufacturers assure us. Sometimes the whole lower part of the share and both smoothing-boards are formed of one single piece. Their depth is very uniform, from 12 to 14 inches, (destined for prairie soil.)

3. Hall & Speer, Pittsburg, Pennsylvania, whose ploughs showed some essentially different qualities from those of other firms; rod-iron strongly-bent beams, shares with attached blade for cutter, and also a peculiar connection of the beam with the body of the plough, giving great firmness to the latter. The connection of all these parts is effected by means of screws, the heads of which are sunk, so as to afford an even surface. These ploughs are constructed of very different sizes, ranging from 60 to 150 pounds each, and from 10½ to 17 dollars, respectively.

4. Canadian ploughs, by Mahaffy in Brampton, Gray in Egmondville, and Duncan in Markham, all having rod-iron or cast-steel smoothing-boards, more like the English than like the American patterns, and instead of being concave they were convexed like those by Hornsby in England, and had very long handles. Those ploughs exhibited by Mahaffy and Gray had wooden handles and beams, while Duncan's were entirely composed of iron. Concerning their construction and technical execution, these Canadian ploughs were by no means inferior to those from the United States; their workmanship every way being worthy of imitation.

ENCOURAGEMENT OF SILK CULTURE.

The State of California has enacted a law for the encouragement of silk culture, to the following effect:

Each person growing and cultivating within the State, in a manner suitable for permanent silk culture, 5,000 or more mulberry trees of the age of two years, shall be entitled to a premium of $250. A premium of $300 will also be paid for each 100,000 silk cocoons, in good condition, provided no premium shall have been previously paid on any such cocoons.

The law shall continue in force for four years from April 2, 1866, and the act then passed for the encouragement of silk culture is repealed, and no person hereafter allowed premiums under both acts. The conditions and requirements of an act for the encouragement of silk culture, of April 25 and 27, 1863, shall apply to this act which shall take effect from and after passage.

METEOROLOGY.

[Compiled in the Department of Agriculture, from reports made by the observers of the Smithsonian Institution.]

APRIL AND MAY, 1868.

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain fall, (in inches and tenths,) for April and May, 1868, *at the following places. Daily observations were made at the hours of* 7 *a. m., and* 2 *and* 9 *p. m.*

States and places.	APRIL, 1868.						MAY, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MAINE.		°		°	°	*In.*		°		°	°	*In.*
Steuben	28	52	13	17	36.2	4.00	31	66	1	32	48.8	10.05
West Waterville	17	64	10	16	38.2	2.53	31	76	1,2	34	51.9	8.97
Gardiner	17	68	5, 10, 13	20	39.8	2.28	31	69	1,8	36	51.9	9.58
Standish	17	67	10	13	39.1	2.59	31	75	8	33	51.5	10.16
Norway	17	68	10	10	37.8	.....	28	72	2,8	32	51.7	.....
Rumford Point	16	67	13	10	39.0	1.95	.....	.....	.....	.....	.....	.....
Cornish	17	65	5,13	16	38.7	2.64	28,31	74	8	33	51.3	10.18
Cornishville	17	65	5	16	39.0	2.31	28	76	8	33	51.1	8.32
Averages	.....	.....	.....	.....	38.4	2.61	.....	.....	.....	.....	51.1	9.54
NEW HAMPSHIRE.												
Stratford	16,29	62	10,13	9	34.1	2.95	8	88	1,2	32	52.5	3.84
Concord	17	69	10	19	42.4	.....	31	78	8	36	54.1	.....
Goffstown Centre	17,30	68	13	20	35.6	2.24	29,31	74	2	40	55.2	10.33
Averages	.....	.....	.....	.....	37.3	2.59	.....	.....	.....	.....	53.9	7.03
VERMONT.												
Lunenburg	16	68	10	4	34.3	1.30	28	77	9	32	62.8	4.50
North Craftsbury	16	67	9	14	36.9	2.17	28	78	1	30	51.5	4.52
Randolph	22	63	10	4	35.1	1.92	.....	.....	.....	.....	.....	.....
Woodstock	1,30	63	10	8	36.8	.....	28	75	1,8	34	52.4	.....
St. Albans	15,30	67	6	11	37.3	.....	.....	.....	.....	.....	.....	.....
Middlebury	16	65	5	13	38.3	1.77	29	75	1	31	54.9	4.54
Charlotte	.....	.....	.....	.....	.....	.....	29	88	1	31	56.9	6.50
Averages	.....	.....	.....	.....	36.4	1.79	.....	.....	.....	.....	55.7	5.01
MASSACHUSETTS.												
Kingston	22	72	6	23	43.1	5.80	28	75	1	35	53.3	9.25
Topsfield	22	68	5	21	41.3	5.83	28,31	72	8	34	50.7	8.72
Lawrence	22	65	5,10	23	41.5	5.08	.....	.....	.....	.....	.....	.....
Georgetown	.....	.....	.....	.....	.....	.....	26	78	8	36	50.6	9.30
Newbury	17	68	5	22	41.4	.....	31	79	8	32	51.4	.....

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
Mass.—Continued.		°		°	°	*In.*		°		°	°	*In.*
Milton	22, 30	68	13	20	39. 8	4. 42	31	76		34	50. 7	8. 31
Cambridge	1	74	9	27	45. 2	.....	31	88	8	35	52. 2	.....
North Billerica	23	69	13	22	42. 9	.....	16, 28, 31	78	8	32	54. 3	.....
West Newton	23	76	6, 13	22	40. 5	3. 23	31	82	8	37	54. 6	11. 62
New Bedford	22	65	5, 9	25	41. 8	5. 71	31	76	1	38	52. 8	9. 44
Worcester	23	67	9, 13	21	41. 2	5. 69	28	75	8	34	54. 0	8. 84
Mendon	23	69	{5, 6, 9} {10, 11}	21	40. 4	.....	17, 31	71	8	32	50. 2	6. 70
Lunenburg	17	69	5, 9	19	41. 0	4. 90	27	78	8	34	53. 9	11. 05
Amherst	1	68	5, 9, 10	23	42. 0	4. 27	27	75	8	36	55. 1	7. 86
Richmond	.....	.....	.....	.....	.....	.....	27	77	1	33	56. 5	6. 04
Williams College	30	70	9	18	38. 1	2. 60	16	88	8	34	54. 4	0. 63
Averages	.....	.....	.....	.....	41. 4	4. 75	.....	.....	.....	.....	52. 9	8. 05
Rhode Island.												
Newport	28	61	5, 9, 13	26	41. 5	6. 87	27, 31	71	8	37	52. 2	8. 88
Connecticut.												
Pomfret	23	66	5, 9, 13	20	39. 2	4. 72	27	71	8	33	50. 9	7. 71
Groton	22	63	9	18	40. 6	6, 99	.....	.....	.....	.....	.....	.....
Columbia	1	72	9	23	42. 8	.....	27	78	8	36	53. 9	.....
Middletown	1	71	9	22	42. 5	4. 48	27	77	8	35	53. 3	7. 63
Colebrook	23	68	5	15	39. 9	.....	27	78	8	36	54. 2	.....
Waterbury	23	68	10	23	42. 5	4. 99	27	72	8	36	54. 8	9. 35
Averages	.....	.....	.....	.....	41. 2	5. 29	.....	.....	.....	.....	53. 8	8. 26
New York.												
Moriches	1	70	6, 9, 13, 14	28	46. 0	9. 34	31	76	4	42	55. 4	8. 91
South Hartford	22	72	5, 6	21	42. 2	2. 95	17	81	1	35	58. 1	6. 20
Troy	17	72	10	21	42. 9	3. 77	27	76	1	38	57. 6	6. 33
Germantown	1, 17	72	5, 9, 13, 14	24	43. 2	5. 60	.....	.....	.....	.....	.....	.....
Garrison's	23, 30	72	5, 9	25	45. 0	5. 47	27	75	8	41	57. 0	8. 08
Throg's Neck	22	74	9, 13	25	44. 5	.....	14, 31	74	8	42	55. 6	.....
White Plains	23	70	9	24	45. 8	.....	27	72	8	38	55. 5	.....
Deaf and Dumb Ins.	23, 27	67	6, 9, 13	25	43. 4	6. 42	27	69	8	41	54. 7	7. 19
Columbia College	23	71	5, 13	28	45. 9	2. 65	31	69	8	41	54. 9	5. 84
Flatbush	27	69	13	24	43. 3	1. 55	25	72	8	40	54. 2	5. 08
Newburgh	27, 30	74	9	26	46. 3	4. 15	27	80	8	42	57. 6	6. 82
Minaville	17, 30	67	10, 13	17	50. 3	2. 71	27, 30	74	8	34	54. 3	7. 40
Gouverneur	15	72	9	12	38. 3	1. 65	27	83	1	32	55. 3	4. 23
North Hammond	15	80	5	12	40. 4	0. 99	27	88	1	32	57. 0	5. 37
Houseville	15	63	5	10	35. 6	2. 74	27	78	1	30	54. 1	4. 61
South Trenton	1	62	5, 13	12	36. 5	3. 04	29	80	1	30	50. 2	7. 74
Cazenovia	30	66	5	14	38. 8	3. 25	27	82	1	32	54. 8	5. 48
Oneida	15	70	9	12	41. 1	3. 99	27	82	13	35	57. 0	10. 05
Depauville	15	75	5	14	38. 8	3. 25	27	82	1	32	54. 8	5. 48
Theresa	15	73	5	12	.....	2. 43	.....	.....	.....	.....	.....	.....
Oswego	15	75	5	17	39. 0	1. 53	27, 29	77	1	36	51. 2	3. 35
Palermo	15	73	9	15	37. 3	1. 50	27	83	1	34	54. 0	2. 60
Nichols	27	73	13	18	41. 9	.....	27	82	1, 10	37	55. 3	.....
Newark Valley	27	69	13	8	37. 9	.....	27	80	11	34	52. 6	.....

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
NEW YORK--Con'd.		°		°	°	*In.*		°		°	°	*In.*
Geneva	15	73	5	18	40.3	2.38	27	81	1	35	53.8	3.74
Rochester	15	75	5	21	41.2	1.86	27	83	1, 7, 18	40	54.8	6.36
Do	15	74	8	20	41.3	1.81	27	83	1	36	54.6	6.36
Little Genesee	28	74	9	9	38.3	1.75	26	80	11	25	53.1	3.65
Suspension Bridge	27	68	5, 9, 12	22	41.6	.....	27	80	1	38	55.7	.....
Buffalo	15	79	5, 9	19	40.9	1.86	26	81	8	37	54.1	4.35
Sloansville	.....	.....	.....	.....	.....	.....	27	72	8	38	54.2	8.74
Averages	.....	.....	.....	.....	41.5	3.14	.....	.....	.....	.....	51.4	5.99
NEW JERSEY.												
Paterson	23	72	6	22	44.7	5.35	26	76	8	42	57.1	9.39
Newark	23	73	13	21	45.1	5.26	31	71	8	38	55.3	6.92
New Brunswick	23	72	13	23	44.6	4.62	27	71	2	41	55.3	7.70
Trenton	.....	.....	.....	.....	.....	.....	31	74	8	46	60.7	6.98
Moorestown	15	75	13	27	46.1	5.09	27	76	2	41	56.4	5.87
Elwood	15	71	6	19	46.6	.....	30	80	4	32	56.9	.....
Dover	23	73	5, 6, 9	25	44.4	2.35	27	73	8	40	55.1	8.54
Haddonfield	1	69	13	22	44.4	5.55	27, 30	75	8	42	56.4	7.45
Newfield	15	73	6	22	46.3	.....	30	83	7, 8	43	57.4	.....
Greenwich	23, 30	72	13	25	47.7	3.87	30	77	3, 7, 8	45	58.4	5.31
Vineland	30	80	13	24	47.1	5.19	30	90	8	44	59.2	6.69
Rio Grande	2	71	13, 14	28	46.9	.....	26	76	4	40	56.3	.....
Seaville	1	84	9	28	45.5	6.15	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	45.7	4.82	.....	.....	.....	.....	57.0	7.20
PENNSYLVANIA.												
Nyces	1	71	5, 13	18	41.0	4.30	30	75	8	35	53.2	8.90
Fallsington	1, 23	71	6	25	46.0	4.10	27	79	5, 8	43	57.3	6.40
Philadelphia	23	70	12	30	47.2	4.29	30	77	8	42	58.3	6.89
Horsham	23	73	5	26	48.9	3.94	30	73	8	41	57.9	7.81
Plymouth Meeting	23	73	13	23	45.7	.....	27, 30	74	8	43	57.0	.....
Dyberry	28	71	13	10	38.5	.....	27	78	12	34	52.4	.....
Whitehall	23	72	14	20	43.6	.....	27	82	12	36	57.0	.....
Factoryville	27, 28	70	5, 9	18	40.2	3.82	27	80	8	37	54.5	5.85
Reading	23	78	13	25	47.1	.....	26	81	8	43	59.0	.....
Parkesville	23	74	5, 9, 12	28	45.4	4.20	30	79	1, 9	45	57.1	4.82
Ephrata	23	78	6, 13	24	47.1	2.16	30	78	4	45	63.4	3.67
Silver Spring	23	80	5, 13	26	47.0	.....	.....	.....	.....	.....	.....	.....
Mount Joy	23, 30	75	13	13	47.5	.....	30	76	9	42	59.0	.....
Harrisburg	23	73	13	25	45.8	5.02	27	77	8	45	59.2	4.40
Tioga	28	78	9	12	41.1	3.60	29, 30	80	9	30	51.1	5.76
Lewisburg	30	73	5	22	43.6	3.85	27	77	8	40	56.3	4.10
Ickesburg	23, 30	75	13	17	44.4	4.28	30	80	4	42	58.3	5.84
Grampian Hills	28	74	5, 9, 13	10	36.9	4.56	26	77	8, 9	30	52.5	5.91
Johnstown	29	68	13	15	40.2	7.55	29	70	9	28	53.5	12.18
Franklin	13	75	13	15	40.0	.....	26	79	10	35	56.6	.....
Connellsville	28	79	5	20	46.4	.....	29	82	8	38	58.8	.....
New Castle	15	77	13	11	44.5	.....	29	81	11	32	58.8	.....
Beaver	28, 30	75	5, 8, 12, 13	30	46.5	.....	29	81	7, 8	42	58.5	4.1

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
PENNSYLV'A—Con.		°		°	°	*In.*		°		°	°	*In.*
Canonsburg	15	73	13	20	44.2	2.54						
Fountain Dale	30	80	5	24	47.6	4.27	27	78	8	44	59.9	7.83
Averages					44.2	41.5					56.9	6.30
MARYLAND.												
Woodlawn	1	73	13	27	46.8	4.16	30	78	3, 8	44	58.3	5.02
Annapolis	30	71	6	27	50.0	3.74	27	75	8	47	59.4	8.14
St. Inigoes	28	72	5, 9	31	50.0	1.75						
Emmittsburg	30	82	5, 13	24	46.7		31	80	8	44	59.5	
Mt. St. Mary's Col.	30	77	13	22	46.4	4.16	27	74	8	45	57.4	7.60
Averages					47.9	3.45					58.9	6.92
VIRGINIA.												
Surry C. H	30	87	5	32	57.5		27, 29, 30	89	8	49	68.5	
Johnsontown	30	76	6	30	52.2		2	80	8	49	62.6	
Comorn	30	82	5, 9	32	55.2	0.59	26	78	3	48	61.9	4.17
Mt. Solon	30	82	6	28	53.8		1	82	12	46	62.9	5.22
Lynchburg	30	74	6	31	51.3							
Snowville	30	81	6	22	48.1	14.63	2, 27	84	10	39	59.5	12.30
Wytheville	2	83	6	28	49.8	3.31	1	81	10	44	59.3	3.80
Averages					52.7	6.17					62.4	6.37
WEST VIRGINIA.												
Romney	30	82	5	24	50.1		1, 6	80	9, 11	46	61.1	
Weston	4	84	20	39	62.3							
Cabell C. H	24	64	6	28	46.7	1.40	1, 29	72	21, 24	39	56.0	4.60
White Day							29	90	11	40	64.8	
Averages					53.0						60.6	
NORTH CAROLINA.												
Kenansville	30	84	14	37	59.4	9.96	3	94	4	60	73.0	3.98
Goldsboro'	30	87	6	38	59.6	5.25	2, 29	92	9	54	69.5	4.22
Raleigh	30	87	13, 14	36	53.5	3.80	29	94	9	50	58.1	3.20
Oxford	30	80	6	33	53.7	3.50	2	86	9	52	66.0	4.65
Albemarle	30	91	4, 8	32	58.8	6.69	2, 29	95	9, 10	42	65.8	4.31
Statesville	30	82	6, 14	30	51.7	7.56	{1, 27, / 28, 29}	86	9, 10, 14	42	62.9	3.12
Asheville	30	78	6	31	53.2		27	82	9	42	62.3	
Averages					55.7	6.12					65.3	3.91
SOUTH CAROLINA.												
Aiken	30	87	14	39	57.0	9.34	1,5,27,28	87	9	56	69.8	6.42
Gowdysville	30	83	13	35	58.5		31	89	14	50	68.8	
Averages					57.7						69.3	
GEORGIA.												
Atlanta	29	85	8	29	58.2	6.88	5	89	9	46	66.3	4.26
Macon	30	85	8	42	62.8	11.36	1	91	9	53	71.7	
Summerville							2	89	13, 14	58	73.3	5.83
Averages					60.5	9.12					70.4	5.04

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain and melt'd snow.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
ALABAMA.		°		°	°	*In.*		°		°	°	*In.*
Opelika	30	87	8	39	63.4	5.75	28	93	13, 14	55	71.2	3.00
Carlowville	14, 30	86	8	42	66.2	10.46	28, 31	92	9	56	73.3	0.80
Moulton	30	80	6	41	58.6	7.37	27, 28	82	9	44	66.0	3.48
Greene Springs	13	85	8	36	65.9	7.27	28	89	9	51	68.7	4.40
Havana	13	84	8	37	64.8	8.33	28	88	9	50	68.8	3.89
Averages					63.7	7.83					69.6	3.11
FLORIDA.												
Jacksonville	20	92	8	50	72.0	2.83	6	97	9, 14, 19	67	78.3	2.85
Port Orange	12	88	8	48	71.3	.....	6	94	13, 14	68	78.7	.....
Lake City	26	85	8	43	68.5	.....	28	92	9	58	72.1	.....
Averages					70.6	.....					76.1	.....
TEXAS.												
Gilmer	29	85	3	47	66.3	.....	31	98	7	60	73.8	1.78
Houston	30	81	3	62	71.9	.....	26, 27, 31	83	13	66	74.1	.....
Columbia	23	91	4	50	71.4	5.96	29	94	13	57	76.6	2.31
Waco	30	88	1	34	67.8	5.40	29	93	13	56	76.8	3.70
Austin	15	89	26	50	68.2	3.63	3, 16, 31	90	11	60	75.2	2.33
Averages					69.1	4.99					75.3	2.53
LOUISIANA.												
Benton	13, 24, 29	84	8	47	65.4	.....	27	90	9	58	69.8	1.00
New Orleans	25	86	8	59	.....	.....	.....	.....	.....	.....	.....	.....
Do	15	82	4, 8	46	65.6	.....	.....	.....	.....	.....	.....	.....
Averages					65.5	.....					.....	.....
MISSISSIPPI.												
Marion	28, 29	88	8	32	67.3	13.66	.....	.....	.....	.....	.....	.....
Grenada	14	84	8	33	62.6	.....	.....	.....	.....	.....	.....	.....
Brookhaven	12, 30	85	4	45	66.6	.....	25, 26	89	8	54	74.1	.....
Natchez	13, 14	81	4	42	69.9	7.97	30, 31	85	8, 9, 13	56	73.8	3.98
Averages					66.6	10.81					73.9	.....
ARKANSAS.												
Helena	13, 30	89	7	39	62.0	.....	28	94	8	52	71.0	.....
TENNESSEE.												
Elizabethton	30	81	6	30	53.2	.....	3	86	9	36	61.8	.....
Tusculum College	24, 29	79	5	32	56.2	.....	.....	.....	.....	.....	.....	.....
Lookout Mountain	30	82	6, 7	35	60.4	.....	.....	.....	.....	.....	.....	.....
Austin	30	84	6	26	58.4	9.80	28	92	10, 18	50	67.0	2.85
Clarksville	29, 30	80	5	31	55.4	7.61	28	86	8, 14	51	65.3	3.21
Memphis	30	88	8	38	60.1	7.96	28	95	8	53	71.4	3.45
Averages					57.2	8.45					66.3	3.17
KENTUCKY.												
Chilesburg	29, 30	78	5	22	53.8	4.34	5	84	8	42	60.0	6.14
Lexington	29, 30	76	5	29	51.9	4.92	1, 28	80	8	43	62.0	5.90
Danville	29	84	5	28	56.6	4.79	1	88	13	52	66.7	4.50

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
KENTUCKY—Cont'd												
		°		°	°	*In.*		°		°	°	*In.*
Louisville	30	79	5	23	53.1	6.05	26, 28	85	22	45	63.0	8.45
Clinton							28, 31	87	22	56	68.0	2.78
Averages					53.8	5.02					63.2	5.55
OHIO.												
New Lisbon	27, 29	68	6, 13	20	43.8	2.84	26, 28	85	11	36	57.3	4.53
Steubenville	28	76	5	23	48.0							
Milnersville	29, 30	75	6	20	45.5	1.42						
Cleveland	29	77	12	20	42.5	2.97	26	82	7	41	54.5	4.64
Do	29	80	12	22	45.1		26	84	7	40	58.1	
Wooster	28	77	6	23	47.4		26	85	7	42	62.3	
Gallipolis	30	78	5, 9, 13	28	51.1	5.06						
Kelley's Island	29	66	5	22	42.2	1.83	26	78	7	43	55.9	2.86
Sandusky	29	74	5	18	43.8	4.13	26	78	1	44	56.4	6.11
Norwalk	29	76	5	16	43.7	1.69	4	84	7	40	55.9	3.62
Carson	28	78	5	12	46.6	1.67						
North Fairfield	28	78	5	18	44.6	1.84	26	81	7	39	57.9	3.77
Westerville	29	76	5	22	47.6	3.57	3, 4	80	7	40	57.6	6.10
Marion	28, 29	72	5	19	44.3	3.85	4	79	7, 8	42	57.3	4.54
Hillsboro'	29	74	5	23	47.4	4.12	5, 26	78	7, 8	42	59.4	5.30
Toledo	29	71	5	13	42.5	3.38	26	80	8	40	58.0	5.31
Bowling Green	27	75	5	3	44.5	5.55	5	88	1, 8	45	58.8	6.22
Kenton	30	70	6, 7, 9, 13	30	43.8	2.44	26	81	14	38	57.3	9.00
Urbana University	30	76	5	22	46.7	3.35	26	83	8	42	60.2	6.19
Bethel	29, 30	75	5	24	47.3	3.50	4	82	18	40	56.8	6.60
Cincinnati	29	74	5	25	49.1	2.72						
Do	30	85	9, 13	33	53.7	3.30	1	86	19	50	66.0	6.01
College Hill	30	75	6	26	48.5	4.44	1, 4, 28	80	8	43	63.2	8.00
Averages					46.0	3.18					55.3	5.54
MICHIGAN.												
Monroe City	27	75	4, 8, 10	23	44.3	2.87	26	76	1, 7, 18	44	55.2	4.19
Alpena	28	48	5	15	33.7	1.32						
State Agric. College	28	72	5	17	42.7	1.83						
Litchfield	27	72	4	12	40.5	3.38	4	84	7	38	56.7	5.15
Grand Rapids	28	76	5	17	41.8		26	88	1	42	60.2	
Northport	27	70	5, 8	16	37.5		25, 26	82	1	35	52.1	1.00
Holland	28	70	8	21	41.7	2.58	25	79	1, 7, 13, 16	44	55.4	3.05
Otsego	25, 26	72	4	16	45.7		25	84	9	37	58.0	
Copper Falls	26	51	2	5	14.3	3.90	26	82	1	32	51.2	1.70
Ontonagon	20	62	9	4	33.2		25	88	9	32	48.0	
Averages					37.5	2.64					54.6	3.01
INDIANA.												
Richmond	29	71	5	23	45.8	4.62	28	78	7	43	58.9	7.18
Aurora	29	80	5	22	50.9	3.69						
Vevay	28, 30	85	5	23	53.1	3.95	1	95	8, 9, 14	49	67.6	5.93
Muncie	22, 27	74	4, 5	25	46.9	5.25	28	85	7	41	61.0	8.75
Spiceland	22	72	4, 5	25	47.1	5.70	25	83	7	44	60.7	7.90

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
INDIANA—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Columbia City	28	74	4	22	48.1	.....	.....	.....	.....	.....	.....	.....
Carthage	{25,26,28, 31}	78	10	34	59.6	11.75	.....	.....	.....	.....	.....	.....
Indianapolis	22	72	5	25	46.9	4.94	5	82	7	44	60.2	8.26
State University	30	71	5	25	48.8	5.17	28	81	8	47	61.4	5.20
Rensselaer	22	72	4	22	44.2	6.90	5	83	6	42	59.0	13.9
Merom	30	72	5	25	49.6	2.00	28	84	8	47	64.1	4.44
New Harmony	30	77	5	32	53.6	5.52	5	86	8, 13, 14	52	66.6	3.55
Averages	.....	.....	.....	.....	49.5	5.49	.....	.....	.....	.....	62.0	7.13
ILLINOIS.												
Chicago	21	73	5	19	45.9	3.00	25	75	13	43	55.3	2.73
Near Chicago	26	70	4, 5	14	43.8	.....	4	86	13	36	55.6	.....
Ridge Farm	22	74	4	28	42.5	2.50	5	89	8	40	61.0	10.30
Marengo	27	69	5	9	41.4	6.06	4	79	10	34	56.2	4.21
Golconda	24	87	4, 5	26	58.0	4.20	30	94	9, 21	56	70.3	3.20
Aurora	27	67	5	14	42.2	4.56	25	79	7	43	56.2	3.38
Sandwich	22	72	4	18	43.2	2.45	25	82	1	43	58.6	2.90
Ottawa	22, 27	79	4	24	45.7	2.50	25	86	7	45	51.9	7.69
Winnebago	27	71	5	17	41.1	4.43	4	84	1	41	58.7	3.82
Rochelle	27	72	5	13	42.1	.....	5	84	8, 10	41	58.0	.....
Tiskilwa	22	74	5	22	45.0	.....	4	85	12	42	59.6	4.50
Magnolia	27	82	5, 10	26	47.3	4.50	24	88	19	42	60.6	7.80
Elmira	22	78	5	23	46.5	3.15	25	86	7	44	61.3	7.04
Peoria	22	79	5	22	47.6	3.18	25	82	8	47	62.1	7.85
Springfield	30	78	5	26	45.6	.....	{2, 27, 30, 31}	86	12, 13	40	61.1	.....
Dubois	30	77	5	21	47.6	8.20	30	83	8	40	61.4	4.75
Waterloo	29	82	5	26	49.0	.....	30	92	7	51	65.6	.....
Galesburg	22	75	9	25	44.6	5.54	25	81	7	46	60.5	6.74
Manchester	22	78	13	20	48.2	5.60	29	86	7	48	64.7	5.59
Mount Sterling	22	78	5, 9	26	49.3	.....	31	88	7, 8	46	66.0	.....
Andalusia	22	72	5	22	46.0	.....	4, 25	84	19	42	62.1	.....
Augusta	22	72	9	23	48.8	5.37	.....	.....	.....	.....	.....	.....
Belvidere	27	70	4	15	40.9	.....	25	81	19	31	56.2	.....
Averages	.....	.....	.....	.....	46.3	5.07	.....	.....	.....	.....	69.1	6.32
WISCONSIN.												
Manitowoc	27	72	4, 8	18	39.3	1.92	21	75	1	36	53.7	1.01
Plymouth	27	71	8	13	38.4	3.20	4, 24, 25	84	1	36	56.0	1.20
Milwaukee	21	70	5	16	39.9	2.97	22	56	1	35	51.5	2.05
Appleton	27	64	8	13	39.1	.....	23	79	1	36	58.5	.....
Geneva	27	70	5	6	41.0	.....	25	82	1	40	57.3	.....
Waupacca	27	72	8	10	40.7	.....	5, 24, 25	85	1	36	59.8	.....
Embarrass	27	72	5	12	37.4	3.00	24	86	1, 11	36	56.3	1.74
Rocky Run	27	73	8	17	41.0	1.50	4, 25	83	1	38	58.4	1.66
Edgerton	21, 27	75	5	9	42.2	4.05	26	90	8	38	59.1	3.34
Baraboo	{25,26,27,28}	79	8	12	43.0	.....	24	86	8, 12	31	57.5	5.00
New Lisbon	28	72	8	12	41.1	.....	.....	.....	.....	.....	.....	.....
Bayfield	.....	.....	.....	.....	.....	.....	23	80	7	32	48.2	.....
Averages	.....	.....	.....	.....	40.1	2.77	.....	.....	.....	.....	56.1	2.28

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
MINNESOTA.		°		°	°	*In.*		°		°	°	*In.*
Beaver Bay	20	55	10	3	30.8	2.05	.....	.....	.....	.....	.....	.....
St. Paul	27	72	8	9	39.1	0.76	24	87	28	39	60.4	3.96
Minneapolis	27	72	8	8	38.6	2.01	24	91	28	38	59.6	4.37
Sibley	27	72	5, 8	10	37.3	0.90	24	85	12	43	60.0	3.80
New Ulm	27	74	8	12	40.5	2.11	24	84	8, 28	46	61.7	3.68
Danville	27	72	8	10	39.2	.....	.....	.....	.....	.....	.....	.....
Averages	.....	.....	.....	.....	37.7	1.56	.....	.....	.....	.....	60.2	3.95
IOWA.												
Clinton	22, 26, 30	70	4, 5	24	43.6	6.75	22, 24	82	7, 8	40	60.2	10.00
Dubuque	27	70	9	18	42.9	1.99	25	82	7, 8	46	60.7	3.53
Monticello	30	73	5, 8	22	44.5	2.78	26	90	13, 19	47	61.2	4.59
Burlington	21	72	5	25	46.9	.....	25	84	7	46	63.2	.....
Fort Madison	22	75	5	18	45.5	7.57	31	86	19	41	62.0	9.84
Guttenberg	27	74	5, 8	16	40.3	.....	25	89	19	42	59.1	.....
Ceres	21	70	8	18	42.5	.....	4	86	6	40	62.9	.....
Mount Vernon	22	76	5	20	42.9	.....	25	85	19	40	62.3	.....
Iowa City	21	78	5	18	44.5	4.70	21	82	13	46	61.6	7.20
Independence	27	75	5	17	42.4	2.10	23	89	7	45	61.5	3.60
Near Independence	27	77	5	16	41.2	2.90	24	88	12	43	56.8	5.70
Waterloo	27, 30	72	5	15	40.8	.....	24, 25	86	29	46	67.0	.....
Iowa Falls	30	70	5	20	41.9	3.97	24, 25	84	8	36	64.0	3.28
Algona	27	70	3	16	40.8	.....	24	86	7	44	60.6	.....
Do	27	66	3	13	40.7	.....	23	82	7, 29	44	60.9	.....
Fort Dodge	30	71	3	17	41.6	1.86	24, 25	88	7	44	61.3	5.02
Boonsboro'	11	80	5	16	.....	.....	27	87	12	44	62.5	6.58
Rolfe	30	76	5	14	44.9	1.58	23	89	6, 7	42	62.6	4.47
Fontanelle	22	78	5	17	43.1	6.13	25	87	7, 11	47	64.7	6.36
Logan	11	76	5	12	43.4	2.60	5	84	12	40	60.9	4.00
Woodbine	11	78	3	18	42.7	.....	25	88	11	44	62.7	.....
Bowen's Prairie	.....	.....	.....	.....	.....	.....	23	88	30	44	61.7	5.09
Averages	.....	.....	.....	.....	42.8	3.74	.....	.....	.....	.....	61.8	5.60
MISSOURI.												
St. Louis University	22	77	5	30	51.5	5.89	5	87	7, 13	51	66.9	4.00
Allenton	30	85	5	28	51.4	6.05	1, 25	90	19, 22	40	65.1	5.71
Hematite	29	80	5	28	52.8	7.40	1, 2	88	22	42	66.1	7.70
Canton	22	80	5	25	49.4	.....	3, 31	87	7	47	64.7	6.05
Do	22	80	5	24	46.5	7.47	.....	.....	.....	.....	.....	.....
Rolla	29	82	5	25	51.0	7.34	1	87	8	39	64.1	3.39
Jefferson City	30	79	5	29	50.0	.....	3	86	7	50	65.0	.....
Hermitage	30	79	3	30	51.8	4.93	2	92	13	45	67.0	1.29
Harrisonville	{11, 22 / 23, 30}	76	5	26	47.7	2.51	2	88	7	46	66.3	4.23
Oregon	22	83	2	22	47.7	3.43	2	88	12	50	66.7	3.50
Averages	.....	.....	.....	.....	49.9	5.62	.....	.....	.....	.....	65.7	4.48
KANSAS.												
Leavenworth	11, 22	77	5	23	48.0	2.36	2	94	22	42	64.6	4.35
Do	11, 21	83	5	22	47.7	3.44	.....	.....	.....	.....	.....	.....

Table showing the range of the thermometer, &c., for April and May—Cont'd.

States and places.	April, 1868.						May, 1868.					
	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.	Date.	Max. temp.	Date.	Min. temp.	Mean temp.	Rain fall.
KANSAS—Cont'd.		°		°	°	*In.*		°		°	°	*In.*
Olathe	30	83	9	29	48.9	5.90	.....	.....	.....	.....	.....	.....
Baxter Springs	30	83	5	32	56.4	2.80	27	96	8	46	71.4	2.95
Atchison	21, 22	82	5	23	48.7	7.10	2	92	12	46	66.7	9.45
St. Univ. Lawrence	11	83	5	25	49.7	2.95	2	91	7	46	66.7	2.81
Holton	21, 23	83	2	26	48.2	.....	{1, 2, 4,} {24, 31}	89	11	46	70.1	.....
State Agric. College	11	83	5	27	46.6	1.96	2	88	12	51	67.0	1.38
Council Grove	22	82	2	26	50.6	2.65	2, 5, 9	90	12	46	70.8	3.05
Averages	.....	.....	.....	.....	49.3	3.58	.....	.....	.....	.....	68.1	3.99
NEBRASKA.												
Elkhorn	30	73	3	20	44.2	.....	25	83	6	45	64.6	.....
De Soto	11	78	3	22	44.5	3.16	1	85	6	45	65.1	.....
Bellevue	21, 30	76	3	24	47.3	2.60	1, 3, 5	86	6	48	65.0	7.20
Glendale	22	89	3, 8	22	45.5	3.60	1	89	8, 11	45	65.0	8.20
Dakota	30	72	3	21	44.3	.....	31	90	11	45	64.6	.....
Omaha Agency	30	79	3	23	45.9	1.00	5	84	7	45	65.5	.....
Averages	.....	.....	.....	.....	46.9	2.57	.....	.....	.....	.....	64.9	7.70
UTAH TERRITORY.												
Gt. Salt Lake City	.....	.....	.....	.....	.....	.....	13	73	7	41	56.3	2.36
CALIFORNIA.												
San Francisco	24	72	15	48	52.7	2.35	.....	.....	.....	.....	.....	.....
Antioch	24	74	18	47	67.9	1.13	.....	.....	.....	.....	.....	.....
Murphy's	25	80	13	34	54.8	2.91	12	92	5	30	56.0	21.26
Averages	.....	.....	.....	.....	58.2	2.13	.....	.....	.....	.....	.....	.....
WASHINGTON TER.												
Port Townsend	1	65	11	40	52.2	0.65	.....	.....	.....	.....	.....	.....

NOTES OF THE CROPS, WEATHER, &c., APRIL, 1868.

Steuben, Maine.—A severe storm of snow, hail, and rain on the 7th and 8th.

West Waterville, Maine.—From 4th to 7th sleighing as good as in the winter. Spring farm-work began on 25th. Snow-fall in April 18 inches.

Gardiner, Maine.—*Four* winter months usually spoken of; but this year April must be added.

Lisbon, Maine.—Month cold, dry, blustering, but few places free from frost so that farmers could sow grain.

Standish, Maine.—More snow fell on the 7th than in any winter storm; sleighing for six days.

Norway, Maine.—Month remarkable for absence of rain; ground dry, and ponds and streams low.

Cornish, Maine.—Snow all day, 7th; frogs peeping, and snakes crawling, 16th; first swallows, 30th. Snow-fall in April 16 inches.

Stratford, N. H.—Coldest April on my records. Snow yet on mountains in all directions, and drifts in open fields.

Antrim, N. H.—April a cold month; spring very backward; 15 days of snow and rain, but quantity less than in April, 1867.

Goffstown Center, N. H.—Frogs peeped on the 3d; but the snow-storm on the 7th silenced them. Snow on the hills disappeared on the 23d. No thunder or lightning this April.

Lunenburg, Vt.—Very dry, mild weather; roads settled; and more maple sugar made this season than for many years.

Craftsbury, Vt.—An excellent sugar season; frost mostly out of ground, 25th; vegetation a fortnight earlier than last year.

Randolph, Vt.—Snow-storms on 4th, 5th, 7th, and 27th.

Kingston, Mass.—Great numbers of wild geese, 2d; frogs peep, 4th; snow fall of the season two feet more than 1866–'67, which was a snowy season.

Newbury, Mass.—Heard frogs on 1st; good sleighing on 11th; ground frozen hard on 24th and 27th.

Topsfield, Mass.—Sleighing, 8th and 12th; ice half an inch thick on 24th.

North Billerica, Mass.—Snow-storms, 4th, 5th, and 7th; the last severe and snow four to five inches deep; snow gone, 16th. No May-flowers visible on 30th.

New Bedford, Mass.—Oriole heard, 3d; house-swallows, 14th.

Mendon, Mass.—Three inches snow on 5th, seven on 7th; three on 25th; all gone on 26th.

Lunenburg, Mass.—Thunder-showers on 2d and 16th; coldest April since 1857.

Williamstown, Mass.—Hepatica, arbutus, poplar and alder in blossom on the 1st; frogs heard, 15th; elm and willow in blossom, 20th. April snow-fall 15 inches.

Newport, R. I.—Snow on the 7th ended in rain, with a very high tide and heavy sea.

Pomfret, Conn.—The coldest April of which we have record.

Columbia, Conn.—Snow on the 5th, 7th, 10th, and 25th; rain on 2d, 7th, 10th, 14th and 20th; ground frozen on 24th; a remarkable April for cold and snow; farm work a month behind time.

Moriches, N. Y.—Remarkable thunder-storm on 16th; rain in torrents part of the time. A young lady at Christian Hook was killed in her bed; the lightning passed through the shingled roof, entered her ear, passed through the neck and left a large hole under her arm opposite the entrance of the fluid. Her mother was also severely injured, and the dwelling much damaged. The month has been unusually cold.

South Hartford, N. Y.—April cold and backward; probably more snow

than in any April for 50 years; in some places nearly three feet fell, of which two feet fell on the 7th. Good sleighing on the 13th and frogs out on 14th.

Troy, N. Y.—On the 7th, 14.3 inches of snow fell, the heaviest in April since 1856; on 10th, 7.5 inches fell.

Garrison's, N. Y.—April wet and cold; not a furrow turned before the 25th.

Minaville, N. Y.—Severest April snow-storm remembered, on the 7th; 15 inches fell, and sleighs ran six days. Farmers commenced sowing grain on the 20th; frost and ice the 28th.

North Hammond, N. Y.—Month very dry and backward; the St. Lawrence lower than ever known.

Houseville N. Y.—Snow on the 2d, 4th, 5th, 7th, 18th and 27th; sleighing till the 14th.

South Trenton. N. Y.—Frogs heard the 15th; first thunder-storm the 30th.

Depauville, N. Y.—From the 2d to the 14th, weather cold, freezing most of the time; from the 7th to the 14th, sleighing; last half of the month warmer, but variable.

Palermo, N. Y.—Coldest April in 15 years; on the 7th and 8th snow fell eight inches deep with wintry fury.

Nichols, N. Y.—Snow-fall in December 18.25 inches; in January, 28 inches; in February, 17 inches; in March, 13 inches; in April, 14 inches (of which eight inches fell on the 7th;) in all, 90.25 inches.

Newark Valley, N. Y.—A very early spring; farmers have all their grain sowed.

Little Genesee, N. Y.—First week unpleasant, with snow squalls and cold; since, pleasant as usual; a very good sugar season.

Buffalo, N. Y.—Temperature 2° below the average of ten past Aprils; much fine weather for farm work, and from March 20 to the 20th inst., excellent sugar season and more made than usual.

Newark, N. J.—April closed with scarcely a blossom on fruit trees; the mean temperature being 4° lower than that of 24 Aprils preceding.

Moorestown, N. J.—Heavy thunder-shower throughout the 16th; the lightning struck the earth within 75 yards of a barn, making a hole two feet deep, branching off in various directions under ground, marking its course by occasional ruptures of the sod.

Elwood, N. J.—April cold and wet; snow on three days and rain on ten.

Dover, N. J.—Frogs heard on the 2d; freezing all day, 9th; hepatica and epigæa in bloom, 19th; wintry, 23d; vegetation struggling to hold its place, 30th.

Newfield, N. J.—A wet and cloudy month; very white frosts, 4th and 14th; chewink and swallow, 20th; whippoorwill, 27th; lark and kingbird, 28th.

Greenwich, N. J.—Month closes backward; few peach and no apple trees in bloom; farm work hindered by cold and wet.

Fallsington, Pa.—Snow-storms on the 5th, 10th, and 12th; the last very severe. Rain on ten days. The coldest April since 1857; farmers not done sowing oats, and no blooms except on a few cherry trees.

Philadelphia, Pa.—From November 13th, 1867, to April 12, 1868, snow fell 33 times on 35 days.

Dyberry, Pa.—Oats sowed and potatoes planted from the 27th to the 29th. April snow-fall, 25.8 inches; since November 6th, 1867, 114 inches.

Whitehall, Pa.—Farmers two weeks behind time; as much snow in April as in the three months preceding.

Harrisburg, Pa.—Snow on the 4th, 7th, 9th, 10th and 12th, and rain on ten days.

Tioga, Pa.—On the 1st, beautiful warm day with thunder-shower in the evening; from 4th to 15th more like winter than spring; unfavorable weather for farmers, and severe on sheep and lambs.

Fountain Dale, Pa.—Peach blossomed, 23d; cherry, 26th; pear, 30th; corn planting began, 25th; ground free from frost all the month.

Parkesville, Pa.—Slight rain, then snow, on the 4th; snow on 9th, 10th, and 12th; rain on ten days; hail on 23d.

Grampian Hills, Pa.—Except a few days, April has been wet and cold, ground mostly covered with snow, and vegetation backward.

Johnstown, Pa.—Peaches in bloom, cherries and plums nearly so; grass green but short; fall grain looks well.

Connellsville, Pa.—On the 12th, rain and snow at 10 a. m.; thunder at 11 a. m., rain till 3 p. m., then snow till 5.30 p. m. Heard whippoorwill on 25th.

New Castle, Pa.—From 2d to 15th unusually cold; on 10th, six inches of snow fell and sleighs were going. The average temperature of this April was 5° lower than that of ten Aprils past.

Beaver, Pa.—High wind with flurries of snow on 8th; ground frozen hard, 9th; heavy frost, 26th.

Canonsburg, Pa.—Snow on 3d, 4th, 7th, 9th, and 12th; martins, 14th; swallows, 20th; peach and cherry blossom on 30th.

Woodlawn, Md.—Blue martins appeared on the 8th; ground and puddles frozen, 9th; whippoorwills heard, 28th; cherries in full bloom, 30th.

Surry Court House, Va.—Martins appeared and cherries bloomed, 2d; White frost and ice, killing peaches and plums, 9th; whippoorwill heard, 12th; apple and pear in full bloom, 14th; lilac, 22d.

Johnsontown, Va.—Skim ice on 4th; half an inch thick, 6th; plums in bloom, 15th; cherries, 16th; apples, 23d; lilacs, 30th.

Mount Solon, Va.—Frost on 1st; mountains white with snow, 5th; ground frozen, 6th.

Snowville, Va.—Month wet and cold, farm work retarded.

Wytheville, Va.—Frozen rain and freezing on 14th, killing most peaches and cherries; barn swallows appeared on 17th.

Romney, West Va.—April very wet; vegetation backward, and farmers hindered in work.

Cabell Court House, West Va.—Hard frost on 5th, killing peaches, pears, and cherries.

Kenansville, N. C.—Dogwood in blossom, 2d; whippoorwill heard, 4th; chilly northeast storm, 13th and 14th; vegetation 10 days later than last year, but every indication of good field and fruit crops.

Albemarle, N. C.—A wet month, retarding farm work.

Statesville, N. C.—Peaches in full bloom on 6th; heavy white frosts, 1st, 6th, and 11th, and light frosts, 2d, 4th, and 5th; more than half the corn planted by 30th; summer heat on only three days this year, viz., March 16, 81°, April 29, 76°, May 30, 82°.

Aiken, S. C.—Thunder-storms and showers on 10th, 13th, 15th, 16th, and 20th; that on 16th with a hurricane swept 300 yards wide and two miles in length, from southwest to northeast, prostrating trees, stables, cabins, fences, &c. The trees fell toward northwest, or at right angles to the course of the tornado.

Atlanta, Ga.—On the 8th tender vegetables were frozen on low lands. On 28th grapes in bloom and strawberries ripe.

Carlowville, Ala.—The seventeen-year locusts appearing in great numbers.

Moulton, Ala.—Month wet and warm, and planting much delayed.

Havana, Ala.—Frost, 4th and 8th; whippoorwill heard, 8th; apple in leaf and dogwood in bloom, 9th.

Jacksonville, Fla.—Compared with the average of several Aprils, this is nearly 2° above mean temperature; 6° above mean maximum temperature; nearly 3° above mean minimum temperature, and nearly 8° above mean range of thermometer.

Waco, Texas.—Grasshoppers have destroyed some fields of wheat, and farmers are ploughing them up for corn.

Gilmer, Texas.—Grasshoppers destroying garden vegetables and cotton plants, but not the young corn.

New Orleans, La.—Violent storms of wind and rain, with lightning and thunder, on 6th and 14th; considerable damage done.

Marion, Miss.—Tornado on 15th at 11.45 p. m., with a constant blaze of lightning. It extended from Mobile, Alabama, to Columbus, Mississippi, 225 miles, varying from a quarter to two miles wide, in some places upturning trees and houses, in others touching lightly.

Brookhaven, Miss.—White frost, 7th; very high wind, doing considerable damage, 14th and 15th.

Elizabethton, Tenn.—Severe frost on 6th, doing great damage to the peach in bloom; barn swallow, 5th.

Austin, Tenn.—Light frosts on 1st, 2d, 3d, 4th, 17th, and 18th; heavy frosts 5th and 6th; and very white frost and ground frozen on 7th, injuring fruits.

Clarksville, Tenn.—Light skim ice on 5th; white frost and ice, 6th; heavy white frost, 8th.

Memphis, Tenn.—White frost on 8th, damaging vegetables and fruits. Month had 15 rainy days; fire-flies and mosquitoes now numerous.

Chilesburg, Ky.—Light frost, 1st; heavy frost and thin ice, 3d and 4th; snow 4th, all gone next day; ground frozen, 5th; heavy white frost and ice an inch thick, 6th; purple martins, 16th. The fruit in bloom was generally killed on 5th and 6th.

New Lisbon, Ohio.—Hard frost and ground frozen 3d; snow storm 4th; ground frozen 8th; martins 16th; frost 26th, 27th, and 28th.

Kelley's Island, Ohio.—Snow on 4th, 7th and 12th; crocus in blossom on 21st, 11 days later than last year, which was more backward than nine years preceding.

Sandusky, Ohio—Saw garter snake on 3d. Snow 4th, 8th, 11th; heavy white frost 26th. Apricot in blossom 27th; swallows 28th.

Carson, Ohio.—Thermometer 8° at 6 a. m. on 5th. Barn swallows 26th.

North Fairfield, Ohio.—A very cold April, with 12 inches of snow; but the best run of maple sap I ever saw, from 6th to 19th.

Hillsboro', Ohio.—Snow 7th and 9th. Early cherries in blossom on 15th; peaches, 19th; late cherries, 28th; apple trees, 30th.

Bowling Green, Ohio.—Snow-storms on 4th, 9th, and 12th. The last snow laid till 15th. On 5th thermometer only 3° at sunrise.

Kenton, Ohio.—The coldest April in many years; the snow-storm on 12th as severe as any in the past winter.

Urbana, Ohio.—On 12th had lightning, thunder, rain, hail, snow, and high wind; snow also on 9th; each laid only one day.

Bethel, Ohio.—White frosts and hard freezing on 3d, 5th, 8th, and 13th.

Litchfield, Mich.—Snow-storm on 4th, severest of the season; on 15th, farmers hauled logs on sleds; bank swallow 20th; whippoorwill 29th; season backward, but wheat looks well.

Northport, Mich.—Month much more stormy and cloudy than March, three or four times as much snow fell, and yet the season appears more forward than usual.

Aurora, Ind.—Martins on 1st, but disappeared on 2d. Ice formed on 4th, 5th, 6th, 8th, and 13th. Martins returned 14th; chimney swallows 15th, when peaches blossomed. The 17-year locusts are coming up.

Vevay, Ind.—Heavy white frost on 2d, 3d, 4th; early peaches in bloom suffered by freezing on 5th; snow-storm on 9th, trees cased in ice, and limbs broken down, and peaches in blossom destroyed; but late peaches promise well. Wheat looks bad.

Muncie, Ind.—Several frosts in April, and what is unusual, snow; fruits uninjured.

Spiceland, Ind.—On the 6th 1.5 inches of snow; on the 10th 3.5 inches; on 13th ground frozen hard; peach in bloom 29th; woods show green 30th.

Merom, Ind.—Half-opened peach blossoms enclosed in ice on 9th; hard frost 13th; peach in full blossom 15th, and appears but little injured.

Indianapolis, Ind.—On 9th and 10th snow for 20 hours; melted rapidly, but laid three inches deep.

Marengo, Ill.—We had April in March, and March in April.

Golconda, Ill.—Month pleasant, and crops looking well; fruit but little hurt by the hard frosts early in the month, verifying the saying, "frosts during the light of the moon do little injury."

Aurora, Ill.—Wheat fine; ground in good order for corn; fruit prospects good.

Ottawa, Ill.—Snow flurries 3d and 4th; ice 4th and 5th; hard frost 9th; snow an inch deep 12th; rain on seven days.

Magnolia, Ill.—Ice half an inch thick 5th and 18th; very cold and dry 9th; snow 12th, and drifts three to four feet deep on 13th; house martins 14th; green heron ("thunder pump") heard on 30th.

Dubois, Ill.—Peach blossoms opening 5th; severe frost, killing peaches, 8th; martins 15th; peaches in full bloom 17th; pear 18th; apple and cherry 27th.

Waterloo, Ill.—On 9th fruit blossoms covered with ice, probably all killed.

Augusta, Ill.—Thick ice on 2d; severe snow-storm 5th; very wet and cold 9th to 15th; peach in bloom 21st; wild plum 27th; very wet 24th to 30th.

Waupacca, Wis.—Heavy snow-storm on 22d, 16 inches deep in some places, and laid nearly a week.

Embarrass, Wis.—Hard frost on 5th and 7th; very hard on 8th, 9th, 12th, 13th, and 18th.

Rocky Run, Wis.—Snow on 3d, 4th, 16th, 22d, 23d; wells and ponds lower than at this season since 1850.

Edgerton, Wis.—Frost out of ground 10th. It was frozen five feet deep last winter.

Minneapolis, Minn.—Blue bird appeared on 12th; anemone and blood root blossomed 25th. The coldest April since 1857.

Sibley, Minn.—Last April I sowed grain on 30th; this April 1 finished on 30th—two sowings in one year.

Clinton, Iowa.—Month backward; much rain and east wind.

Monticello, Iowa.—Frost out of ground, 12th; last frost, 18th; corn planting commenced 30th.

Fort Madison, Iowa.—Gale nearly all day, 12th; rain frozen on trees, &c., 13th; cherries blossomed 26th; apple and peach, 29th.

Guttenberg, Iowa.—The fine weather of March was followed by harsh April.

Independence, Iowa.—Snow on 3d, 4th, 12th, 16th, 17th, 24th, 25th; hard freezing, 2d, 5th, 7th, 8th, 17th, 18th, 23d; rain, 11th, 13th, 14th, 15th, 16th, 19th, 22d, 24th, 28th, 29th; hail, 22d, 24th; wild pigeons appeared 21st; martins 27th; currants leaved 28th; grass quite green 29th.

Algona, Iowa.—April did not fulfil the pleasant promise of March; the first half was 2° below the mean of March; after the snow-storm of the 24th April was warm. Prairie grass is now fit for grazing.

Iowa Falls, Iowa,—First eight days very cold; grain all sown; some up and looking well; one-half more breadth sown in this county than last year.

Fontanelle, Iowa.—Freezing and ice till 12th; sleet and rain till 16th; freezing, 17th, 18th; rain and fog, 19th and 20th; young grasshoppers numerous, 21st.

Logan, Iowa.—Month mild and pleasant; vegetation and grasshoppers developing rapidly, the latter having consumed considerable young wheat.

Whitesboro', Iowa.—Month cold and backward; grasshoppers still hatching out, though many have been destroyed by the cold rains.

Jefferson City, Mo.—Wheat and oats fair; barley winter-killed; corn planting going on; grafted peaches nearly all killed on 8th and 9th, but natural fruit along the rivers escaped.

Harrisonville, Mo.—Ice formed 3d, 4th, 5th, 7th, and on 7th many peaches were killed.

Oregon, Mo.—Ice formed on 2d, 3d, 5th, 7th, 9th, 10th, 13th, and on 5th spring wheat was badly injured; violets bloomed on 15th.

Leavenworth, Kansas.—Hard freeze on 2d, 5th, 10th, and apricots, many peaches, and some cherries were killed.

Baxter Springs, Kansas.—Season medium, but rather dry; crops all doing well; the Boughton wheat from Agricultural Department superior to all others.

Lawrence, Kansas.—The heavy frosts of 2d, 5th, 7th, and 10th did not greatly injure fruit buds.

Holton, Kansas.—Never a better prospect for grain and fruits; never greater breadth sown.

Council Grove, Kansas.—Ice and frost on 2d, 5th, 7th, 8th, 9th, 10th, 17th, 18th, 20th; rain on 11th, 23d, 24th, 25th, 26th, 27th, yet peaches and other fruits are all in splendid condition.

Elkhorn City, Nebraska.—Month wet, somewhat cold, and quite windy; the rains have killed off successive hatchings of grasshoppers, but others come, and damage to growing wheat is reported in some places. Swallows appeared 20th; robins 21st; plums in bloom 30th.

Dakota, Nebraska.—Season three or four weeks earlier than in 1867, and wheat looks well, but grasshoppers are damaging it.

Glendale, Nebraska.—Much wheat entirely killed by hard freezing early in the month. Wild strawberries and blue violets bloomed 27th to 29th. Grasshoppers are eating every green thing. No hopes for vegetables and grain. A neighbor put some newly hatched grasshoppers into water, and it froze solid over night; yet next morning, when thawed out, they hopped away as lively as ever.

[Note by A. B. G.—What says our observer at Elkhorn City to this statement by Dr. Child? May there not be a *certain stage* of development of the eggs and of the hatched insect at which they can be drowned or frozen to death, while at other stages they defy death by water or frost? A few careful experiments, at different stages of growth, by our numerous correspondents, if reported to this department, *might* enable us to answer the oft and anxiously repeated question, *what can we do to destroy them?*]

NOTES OF THE CROPS, WEATHER, &c.—APRIL, 1868.

Steuben, Me.—White frosts, 2d and 11th; snow, 2d and 8th; month remarkable for rains.

West Waterville, Me.—Six inches snow on 8th; plum and cherry blossom, 26th; double the usual average of rain in May, and only one entirely clear day.

Gardiner, Me.—Remarkably cold, wet month, more than 2° colder than the average of 32 years; more moisture than average of same time, except May, 1850; six inches of snow fell on the 8th.

Lisbon, Me.—Bobolink on 18th; planting seriously delayed by the wet.

Standish, Me.—Farmers sowing wheat on 2d; frost 13th; chimney swallows, 26th; strawberries bloom 28th.

Norway, Me.—Month very wet, farming suspended on low lands.

Cornish, Me.—From 13th to 26th, the "May rain storm;" more rain fell than I have ever known in the same time and season.

Stratford, N. H.—Snow on 7th, 8th and 9th; barn swallows on 12th; dandelion in bloom, 20th; wild red cherry on 31st.

Antrim, N. H.—Apples in bloom, 31st; great want of rain; farmers behind in work.

Goffstown Centre, N. H.—Remarkably wet month; few farmers done sowing wheat, and very little corn planted.

Lunenburg, Vt.—Month mild and wet, no frost, vegetation forward and promising.

Craftsbury, Vt.—First swallows, 4th; first thunder, 14th; bobolink, 15th; May 5° warmer than in 1867.

Charlotte, Vt.—A dash of hail, 8th; white frost, 11th; cherry and plum in bloom, 22d; apple and peach, 31st.

Kingston, Mass.—Cloudy, rainy, foggy month; 15 rainy days, only 5 clear mornings.

Topsfield, Mass.—May remarkable for many cold stormy days; grass promises well, but little planting done.

Milton, Mass.—Snow on the 8th; 23 entire cloudy days, and wind N. E. 24 days in the month.

Mendon, Mass.—Month very backward, ground wet and rivers high.

Lunenburg, Mass.—Mean temperature of month less than for 30 years; rain on 22 days.

Worcester, Mass.—Snow on 8th; cherries blossom 12th; lilac, 29th.

Williamstown, Mass.—Snow of 8th lay on the hills till 14th; plums and pears blossomed on 21st, and apples on the 27th.

Newport, R. I.—The rainiest month I have ever recorded; farmers much discouraged.

Pomfret, Conn.—A cold wet month: temperature 4° below the average of many years.

Columbia, Conn.—Water froze on 9th; hardly a pleasant day in the whole month.

Waterbury, Conn.—Snow on 7th, frost on 9th; humming bird seen 10th; and Baltimore oriole on 16th; cherry and quince bloomed 15th; pear, 20th; apple, 26th; lilac, 27th.

Moriches, N. Y.—A remarkable May, and the latest, cloudiest spring ever remembered here; vegetation later than ever known.

South Hartford, N. Y.—Swallow on 10th; bobolink, 11th; apple full blooming, 25th; all vegetation late.

Troy, N. Y.—Snow on 8th. May had 14 days altogether cloudy, not one wholly clear, and 18 rainy days. More rain fell than in any May since 1833, and the mean temperature was nearly a degree below any May in same period.

Garrison's, N. Y.—Month unusually wet, farmers have just begun to plant corn.

North Hammond, N. Y.—Cold and frosty, 1st, 3d, 7th; spits of snow, 8th; bobolinks, 14th; plums bloom, 17th; apple and cherry, 27th; crops flourishing.

Depauville, N. Y.—Finished sowing grain on 1st, earlier than ever. First half of May cool and dry; since 15th copious rains; grass, grain and fruits promising.

Nichols, N. Y.—Apple blossomed 22d to 29th; corn planting 26th to 31st, many not yet done.

Newark Valley, N. Y.—May very wet, but farmers mostly done sowing and planting, and crops and fruits promise well.

Little Genesee, N. Y.—Apple not fully in blossom and corn not all planted; wheat and grass promising.

Buffalo, N. Y.—Currants and lilacs in leaf, 17th; cherries and plums in blos-

som, 18th; strawberries and peaches, 19th; apple, 27th; prospect of crops and fruits cheering.

Newark, N. J.—Month cool, mean temperature nearly 3°. 5 less than average in 25 years; blossoming and leafing nearly two weeks later than usual.

Elwood, N. J.—May remarkably wet and cloudy, 22 days rainy, of which 14 were in succession; vegetation 20 days later than usual.

Dover, N. J.—Wilson's strawberry begins to blossom, 16th; pear and cherry, 16th; peach and lilac 23d; first warm day, 31st; no corn planted yet.

Greenwich, N. J.—May equably cool; frost and ice 9th; wheat heading and clover blossoming, 31st.

Fallsington, Pa.—Very wet May, but 2 wholly and 5 partly clear days, and east wind 25 days.

Horsham, Pa.—Very wet and backward May; few have planted corn.

Dyberry, Pa.—May wet, cool and backward; forests show green on 27th; fair promise in crops and fruits.

Whitehall, Pa.—Frost 11th and 12th; plum in blossom, 15th; peach, 18th; pear, 21st; apple, 25th; corn planted, 30th.

Factoryville, Pa.—Corn planted very late, prospect good for hay, oats and apples; cloudy and wet month, but no high winds.

Tioga, Pa.—Hard freeze and ice, 9th, 10th, 11th; from 12th to 25th rain every day; much corn must be planted in June.

Ickesburg, Pa.—Seventeen-year cicada heard on 1st; light frost, 9th, 11th, and 12th.

Fountain Dale, Pa.—Great rain 12th to 14th, (3.26 inches,) more than in any one fall in ten years.

Grampian Hills, Pa.—May closes with fine prospects for grass, wheat, and probably fruit; corn and oats are late.

Franklin, Pa.—Frost on 9th, 10th, 11th, 12th; apple full bloom, 22d; vegetation backward.

Connellsville, Pa.—Thunder showers on 2d, 6th, 7th, 14th, 27th, and 29th.

Woodlawn, Md.—Dogwood blossoming, 7th; apple, 8th; hoar frost 10th; lilac full bloom and rye heading, 18th; Boughton wheat heading, 26th; red Mediterranean, 29th.

White Day, W. Va.—Frosts on 10th, 20th and 21st. May backward; wheat crop more promising than for years; oats and grass good; fruit reported injured by frosts.

Surry C. H., Va.—Chuck-wills-widow or North Carolina whippoorwill heard on 9th; blackberry in blossom, 14th; strawberries ripe, 26th. May was cloudy and wet, with much lightning and thunder, but calm, mild and agreeable.

Comorn, Va.—May wet and cold, corn and oats late, the latter unpromising.

Johnsontown, Va.—First humming-bird, 1st; clover blossoming, 8th; slight frost, 9th; locust trees in blossom on 21st, three days earlier than last year.

Goldsboro', N. C.—Cool weather injurious to some crops; cut worms damaging the corn.

Oxford, N. C.—Seventeen-year locusts appeared, 23d; are very numerous, 31st.

Albemarle, N. C.—Wheat sown last September was harvested on the 30th in fine condition; wild grapes in full bloom, Catawbas as large as squirrel shot, and strawberries nearly over, on 31st.

Gowdysville, S. C.—Early wheat heading on 1st; locusts appeared on 10th, very numerous in some places. [Two correspondents in the south call them "thirteen-year" locusts: is that their term of disappearance there?]

Atlanta, Ga.—The seventeen-year locusts have appeared all over the country.

Moulton, Ala.—First half of May wet; from 7th to 16th cool; last half dry and sultry; the seventeen-year locusts quite numerous.

Opelika, Ala.—Ripe Chickasaw plums on 17th; ripe dewberries, 19th; ripe apples, 24th.

Talladega, Ala.—About 11 p. m. on 6th, a terrible tornado passed 3 miles north of this—a volume of electric flashes followed by a dark cloud, with a roaring noise, sweeping everything before it, and leaving vegetation as if scorched by fire, and horses, mules, cattle, poultry, birds, lying dead all along its path, and trees, buildings, &c., prostrate wherever it reached. Mr. Henry and household (5 persons) were killed; the son seemed to have every bone broken. In another family a daughter's jaw was broken by the concussion. Its track was about three-quarters of a mile wide, and it seemed to touch the earth only at intervals of hundreds of yards. Its course was to the northeast, distance not given.

Lake City, Fla.—Magnolia grandiflora bloomed on 1st; on 5th, four acres in Hamilton county sunk, so that tall trees in its centre were covered with water.

Austin, Texas.—Chuck-wills-widow heard on 2d; lightning and thunder on 2d, 6th, 10th, 16th, 17th, 18th, 19th, 20th, 25th, 29th.

Columbia, Texas.—Cotton-worm here, 4th, six weeks earlier than last year; corn tasselling, 18th. Mean temperature of spring months, 71°.68.

New Orleans, La.—May 1st to 8th, humid and warm; 8th to 18th cool, especially at night; mosquitoes, 19th; 20th to 21st generally warm and sultry.

Shreveport, La.—Thunder with hail, on 28th; some hail-stones weighed eight ounces each; heavy storm from northwest prostrated and broke off much corn, 30th.

Grenada, Miss.—No washing or baking rains in May; crops and fruits promising; cotton has a good stand.

Brookhaven, Miss.—Heavy dews and cold rains retard corn and cotton; sweet and common potatoes growing fast and have fine tubers; beech and oak full of nuts; birds preparing for second brood.

Memphis, Tenn.—Green peas, strawberries and new potatoes plenty by 11th ripe cherries, 19th; flies and mosquitoes numerous, 25th; ripe plums, 29th.

Lexington, Ky.—From 2d to 20th, rain almost daily; after 20th, pleasant and growing weather.

Salem, Ky.—Oats fair; other crops poor; few apples, cherries, strawberries and peaches; no pears.

Chilesburg, Ky.—Month rainy; much thunder, some hail; no apples, pears or peaches; small crop of cherries and strawberries; promise of later berries and grapes.

Lisbon, Ohio.—Frost on 8th, 9th, 10th, 11th, 12th, 18th and 19th; spring about 10 days too late.

Wooster, Ohio.—Rain on 13 days and frost on five mornings, but no damage to vegetation.

Norwalk, Ohio.—Last frost on 19th; apples in bloom, 20th, ten days later than usual; grass and wheat look well; apples and cherries promise fair, but grapes and peaches much injured during the winter.

Kenton, Ohio.—Nearly all rains this year from northeast; last year from southwest; ice formed on 20th.

Urbana, Ohio.—Mean temperature of May 5° below last May, and 1° below the average of May for 16 years; fine promise for fruits.

Sandusky, Ohio.—Cat-bird seen on 1st; chimney-swallow, 20th; plum and early cherry blossomed, 2d; pear and peach, 10th; apple, 19th to 21st.

Bowling Green, Ohio.—Light frosts on 10th, 11th, 19th and 20th; great amount of cloudy weather, but wheat, grass, oats and flax look well; peaches killed; apples show some fruit.

Cleveland, Ohio.—Cherries blossomed on 1st; peach, 3d; apple, 17th; lilacs, 18th.

Toledo, Ohio.—Early cherry and plum blossomed on 6th; apple in full, 22d; frosts on 8th, 9th, 10th, 19th, 20th and 21st.

Litchfield, Mich.—Wheat and grass good, all else backward; some have mowed off the top of their wheat to prevent lodging.

Holland, Mich.—Rain on 13 days and frost on six mornings, the last on 19th.

Otsego, Mich.—Grass, oats and wheat very good, except wheat on low grounds, which has fallen and is rotting.

Northport, Mich.—Month has been very dry; grass has suffered some, but vegetation is about ten days more forward than usual, with great promise of fruit.

Copper Falls, Mich.—May, up to 29th, remarkably warm and extremely dry.

Vevay, Ind.—On night of 26th and 27th, during a violent thunder-storm, the lightning struck a wooden rack for hitching horses, near the market-place. The rack was surrounded by high buildings, all without conductors, yet the buildings were uninjured and the rack was shattered. The thermometer stood at 74° throughout the storm; the barometer at 2 p. m., 29°.30; at 9 p. m., 29°.15; on 27th, at 7 a. m., 29°.17′. The sycamore trees are dying in great numbers, commencing at the lower limbs.

Spiceland, Ind.—Wet month, delaying corn-planting two to three weeks.

Carthage, Ind.—More rain this month than in any month in the year.

Rensselaer, Ind.—Heavy thunder-storm on 26th; the rain and hail fell in torrents, making two inches deep in eight minutes!

Indianapolis, Ind.—May a wet month; some corn not planted up to June 4.

Aurora, Ill.—Spring wheat looks well; corn mostly up and good; potato-bugs numerous and destructive; fruit promises an average crop.

Sandwich, Ill.—Heavy frost on 19th, injuring pears; May favorable to all forage crops.

Winnebago, Ill.—Morello cherry blossomed 5th to 9th; wild plum, 11th; apple, 17th; lilac, 21st.

Tiskilwa, Ill.—Wheat, oats and grass good; corn coming up well; apple promises hardly a medium crop.

Magnolia, Ill.—Bobolink on 1st; strawberry in blossom, 15th; frost, 8th and 19th; an uncommon number of heavy rains, with thunder and lightning.

Peoria, Ill.—Ten thunder-showers on 1st, 3d, 5th, 6th, 26th, 28th and 31st.

Dubois, Ill.—Seventeen-year locusts, 15th to 27th; millions in the woods, though it is only 13 years since their former appearance here.

Galesburg, Ill.—Terrible tornado at Shaugh's (12 miles northwest) on 4th; 16 houses and two churches destroyed, five persons killed and 30 wounded. A wet month, with much heavy thunder.

Mt. Sterling, Ill.—Thunder-showers on 1st, 2d, 3d, 4th, 5th, 6th and 27th; from 14th to 25th the sky almost cloudless, and much planting was done.

Andalusia, Ill.—First 10 days were very rainy; next 15 dry and hot; next five cool and wet; no corn planted until 15th; promise of much fruit.

Belvidere, Ill.—Indian summer weather on 10th. [Several correspondents in Illinois mention this as extending over several days.] Weather quite dry, 14th to 25th.

Manitowoc, Wis.—Fog, 2d, 4th, 15th, 29th; frost, 10th, 11th, 18th, 19th.

Geneva, Wis.—Corn-planting not finished until 20th; spring backward, but wheat looks well; potato bug appearing.

Embarrass, Wis.—Oriole, 2d; plum and pear in blossom, 10th; dogwood, 15th.

Baraboo, Wis.—Frost on 8th, 10th, 11th, 18th and 19th, cutting vegetation on low grounds; May was rather dry.

Rocky Run, Wis.—May very dry, and crops suffered; wheat thinned by it; more northeast wind than usual.

Minneapolis, Minn.—Wild plum blossomed, 11th; lilac, 16th; wild columbine, 17th.

Sibley, Minn.—Frost on 8th, 12th and 13th, doing no injury.

Clinton, Iowa.—First part of May rainy; much east wind during the month, but crops looking well, though late.

Monticello, Iowa.—First nine days rainy, and seven days not a cloud seen.

Fort Madison, Iowa.—Wettest May since 1851; farmers not done planting corn.

Guttenberg, Iowa.—Frost, 19th—first since April 26th; Indian summer from 20th to 25th; no rain from 9th to 26th.

Independence, Iowa.—Wild plum blossomed, 8th; cherry, 10th; apple, 12th; peach, 14th.

Waterloo, Iowa.—Up to 26th very dry, but grain never looked better at this season.

Algona, Iowa.—Crops fine; no grasshoppers, but potato bugs are operating in some places.

Boonsboro', Iowa.—Martins came, 10th; bobolinks, 12th; clear days, 17th to 24th.

Logan, Iowa.—A pleasant growing month, but grasshoppers are destroying wheat, and farmers are ploughing it under and planting corn.

Woodbine, Iowa.—Grasshoppers at work, new broods hatching out; the "new ground" or "sod" wheat suffers most; corn and sorghum not attacked.

Allenton, Mo.—Immense numbers of locusts coming up out of the ground.

Rolla, Mo.—First half of May remarkably wet; last half warm, and very little rain.

Jefferson City, Mo.—Wheat heading out finely, promises more than an average crop; oats good; corn doing well; apples not half an average; peaches few; grapes plenty; small fruits fine, but not an average.

Canton, Mo.—Woods full of 15-year locusts, for they were here in 1853.

Hematite, Mo.—About the 10th the "periodical" locusts made their appearance after an absence of 13 years. By the 25th they were in myriads, and began piercing twigs to lay their eggs. The month has been cold and rather unfavorable.

NOTE.—By the different reports we have 13, 15 and 17 year locusts; that is, if the main body appeared at these different intervals in the several places. Is such the fact?

Lawrence, Kansas.—Green peas on table, 17th; winter wheat heading, 19th; strawberries ripe, 20th; new potatoes, 30th.

Dakota, Kansas.—Wild plums blossom, 2d; corn and wheat looking well, but grasshoppers are eating the latter.

Holton, Kansas.—Best season for farming ever known here; garden, field and orchard crops, all fine; more wheat by one-half, and more fruit than ever raised here; but immigrants plenty also.

Elkhorn City, Nebraska.—Month warm and wet; grasshoppers still abound, doing injury; no frost since April 25th.

De Soto, Nebraska.—Grasshoppers destroying all vegetables except peas and asparagus, damaging some wheat, and even injuring shrubbery, young trees and grape-vines.

Glendale, Nebraska.—Catbird on 1st; apple blossomed, 5th; wild columbine, 15th; locust tree, 25th. Locusts [query, grasshoppers or 17-year locusts?] doing much damage.